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119 West 40 St., New York 18, NY

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Cold Spring Granite Co. 4a/Co
Colonial Hand Split Shingles, Inc. 8d/Co
Colonial-Hites Co. 6f/Co
Colonial Lumber Specialties Inc. –see Colonial Hand Split Shingles, Inc. 8d/Co
Colonial Screen Co., Inc. 19a/Co
Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div. 22g/Co
Columbia Acoustics & Fireproofing Co., Sub. United States Mineral Wool Co.
•*acoustical material* 11a/Co
•*fireproofing material* 12e/Co
Columbia Electric & Mfg. Co. 33a/Co
Columbia Metal Box Co. 27d/Co
Columbus Coated Fabrics Corp.
•*canvas-backed wall covering* 13k/Co
•*vinyl wall covering* 13k/Col
Commercial Controls Corp.–see Electromode, Div. Commercial Controls Corp. 31h/El
Concord Paint Co., Inc. 7c/Co
Concrete Plank Co., Inc. 2d/Co
Concrete Products, Inc. 2d/Con
Concrete Reinforcing Steel Institute 2a/Co
Concrete Service Co. 9/Co
Congoleum-Nair Inc. 13i/Co
–Industrial Sales Div. 23e/Co
Connor Engineering Corp. 31f/Co
Connor Lumber & Land Co. 13J/Co
Connors Steel Div., H. K. Porter Co., Inc. 2d/Cor
Consolidated General Products, Inc.
•*dome skylights* 20a/Cn
•*folding louver doors* 16e/Co
Consoweld Corp. 14a/Co
Construction Products Co. 27f/Co
Construction Specialties, Inc.
•*louvers, louvered penthouses* 20d/Con
•*sunshades* 19e/Con
•*vent brick louvers* 20d/Co
Constructional Chemicals, Inc. 9/Con
Continental Materials Corp.,–see Calsi-Crete Inc., Sub. Continental Materials Corp. 2d/Ca
Continental Nu-Steel Metal Products Co. 16i/Co
Continental Steel Corp. 22g/Con
Contrex Co. 11a/Con
Cook, Loren, Co. 20c/Co
Cookson Co.
•*doors* 16g/Co
•*partitions* 22d/Co
Corbin, P. & F., Div. American Hardware Corp. 18e/Co
Corbin Wood Products Div., American Hardware Corp. 23b/Co
Cordley & Hayes 30d/Co
Cornell Iron Works, Inc. 16g/Cor
Cornice Temper Zinc Alloy Div., Chomes Co., Inc. 8g/Co
Corning Glass Works 29b/Co
–Lighting Sales Dept. 33b/Co
Corrulux Div., L-O-F Glass Fibers Co. –see Johns-Manville 7d/Jo
Corry Jamestown Corp. 22a/Co
Cox Mfg. Co. 31b/Co
Crab Orchard Stone Co., Inc. 4c/Cr
Cramer Posture Chair Co., Inc. 23i/Cr
Cramer Safe Co.,–see Mosler Dropository Corp. 23b/Mo
Crane Co. 27a/Cr
Crawford Door Co. 16i/Cra
Creo-Dipt Co., Inc. 8d/Cr
Crestlyn Div., Douglas Crestlyn International, Inc. 25b/Cr
Crittall Mfg. Co., Ltd. 17b/Cr
Crooks, W. D., & Sons 16c/Cr
Crossfield Products Corp. 13i/Cr
Crown Zellerbach Corp. 27e/Cr
Cummins Engine Co., Inc. 32c/Cu
Cupples Door & Frame Corp. 16a/Cu
Cupples Products Corp.
•*commercial aluminum windows* 17a/Cu
•*curtain walls* 3a/Cu
–Alumi-Coustic Div. 11b/Cu
Curon Div., Curtiss-Wright Corp. 13k/Cu
Curtis-Allbrite Lighting, Inc. 33a/Cu
Curtis Companies, Inc. 16c/Cu
Curtis Mfg. Co., Refrigeration Div. 31a/Cu
Curtiss-Wright Corp.,–see Curon Div., Curtiss-Wright Corp. 13k/Cu
Curtition Corp. 16e/Cu
Custodis Construction Co., Inc. 31k/Cu

Customusic Div.,–see Automatic Canteen Co. of America, Customusic Div. 34a/Auo
Cutler-Hammer, Inc. 32a/Cut
Cutler Mail Chute Co., Sub. Federal Equipment Co. 23b/Cu
Cutler Metal Products Co.
–Building Products Div. 22b/Cu
–Products Div. 27c/Cu
Cyanamid–see Formica Corp., Sub. Cyanamid....14a/Fo
Cyclone Fence Dept., American Steel & Wire Div., United States Steel 22g/Cy

d

Dahlstrom Metallic Door Co. 24b/Da
Dallas Ceramic Co. 13c/Da
Dalmo Continental Inc. 18b/Da
Darling, L. A., Co., Workwall Div. 22a/Da
Daryl Products Corp. 16d/Da
Davidson Enamel Products, Inc., Sub. Fenestra, Inc. 3c/Da
Davis Products Co. 25b/Da
Day-Brite Lighting, Inc. 33a/Da
Dayton Sure-Grip & Shore Co. 2i/Da
Dearborn Glass Co. 7a/De
Decatur Iron & Steel Co., Inc.
•*aluminum windows* 17a/De
•*jail equipment* 23m/De
Deer-O Paints & Chemicals, Ltd. 8a/De
Delta Faucet Corp. 27b/De
Deluxe Metal Products Co., Div. Royal Metal Mfg. Co. 23f/De
Desco Vitro Glaze Assn. of America, Inc. 13h/De
Designware Industries, Inc. 18g/De
Deslauriers Column Mold Co., Inc. 2i/De
Detrex Chemical Industries, Filter Div. 23k/De
Detroit Controls Div., American-Standard 31i/De
Detroit Hardware Mfg. Co.
•*exit devices* 18f/De
•*window hardware* 18b/De
Detroit Incinerator Corp.,
–see American Incinerator Corp. 28a/Am
DeVac, Inc. 17a/Dev
Devoe & Raynolds Co., Inc. 15/Dev
–see also Truscon Laboratories, Div. Devoe & Raynolds Co., Inc. 9/Tru
Dewey & Almy Chemical Div., W. R. Grace & Co. ..9/De
De Witt Products Co. 29a/De
Dicks-Armstrong-Pontius, Inc. 7c/Di
Diebold, Inc. 23b/Di
Diffusa-Lite Co. 33a/Di
–see also Bohem Mfg. Co., Inc. 20a/Bo
Dodge Cork Co., Inc. 13i/Do
Doherty Silentaire Co. 31e/Do
Donald, J. R., Co. 23h/Do
Donley Brothers Co.
•*fireplaces* 31l/Do
•*incinerators* 28a/Do
Donn Products Co.
•*partition studs* 12a/Do
•*suspended ceilings* 11b/Do
Dorian International Inc. 4d/Do
Dor-O-Matic, Div. Republic Industries, Inc.
•*automatic door operators* 18e/Dor
•*manual door operators* 18e/Do
Douglas Aircraft Co., Inc. 14c/Do
Douglas Crestlyn International, Inc.,–see Crestlyn Div., Douglas Crestlyn International, Inc. 25b/Cr
Douglas Fir Plywood Assn. 5b/Do
Dover Corp.
–see Rotary Lift Co., Div. Dover Corp....23g/Ro; 24a/Ro
–see Shepard Elevator Co., Div. Dover Corp....24a/Sh
Dow Chemical Co.
•*comfort insulation* 10a/Do
•*flashings* 8g/Do
•*low temperature insulation* 10a/Dow
Dow Corning Corp. 9/Dw
DoxPlank Mfrs. Assn. 2d/Do
Dravo Corp. 31c/Dr
–Machinery Div. 13a/Dr
Driwood Moulding Co. 5c/Dr
Dropository Corp.,–see Mosler Dropository Corp. 23b/Mo
Dual-Lite Co., Inc. 33a/Du
Dubuque Products, Inc. 22d/Du
Dukane Corp. 34a/Du
Duke Mfg. Co. 26d/Du
Dunham-Bush, Inc. 31a/Dun
–Brunner Div. 31a/Du
Durable Mat Co. 23p/Du
DURAflex Co. 19b/Dur
Duralab Equipment Corp. 23l/Du
Duraloom Carpet Mills, Inc. 13l/Du
Dura-Vent Corp. 31f/Du
Durham Mfg. Corp. 23i/Du
Duriron Co. Inc. 29b/Du
Dur-O-Wal Co. 4h/Du
Dusing & Hunt, Inc.
•*aluminum and vinyl-on-steel doors* 16a/Dui
•*fire doors* 16b/Du
•*sliding doors* 16h/Dus
•*wood doors* 16c/Dus
Duvinage Corp. 6h/Duv
Dwyer Products Corp. 25b/Dw
Dyfoam Corp.
•*comfort insulation* 10a/Dy
•*plastic foam insulation* 10b/Dy

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Eastern Products Corp.
•*ceiling suspension systems* 11b/Ea
•*drapery hardware* 19d/Eas
•*venetian blinds* 19d/Ea
–Acoustical Div. 11a/Ea

Eastern Quarries, Inc. 4a/Ea
Eastern Steel Rack Co. 23c/Ea
Eastern Venetian Blind Co.,–see Eastern Products Corp. 19d/Eas
Eastman Chemical Products, Inc., Sub. Eastman Kodak Co. 15/Ea
Eastman Kodak Co.,–see Eastman Chemical Products, Inc., Sub. Eastman Kodak Co. 15/Ea
Ebco Mfg. Co. 30d/Eb
Eddy Stoker Corp. 31J/Ed
Edgewood Furniture Co., Inc. 23o/Ed
Educational Equipment Co. 23e/Ed
Efron, Theodore, Mfg. Co. 27c/Ef
Eggers, F., Plywood & Veneer Co. 16c/Eg
Ehret Magnesia Mfg. Co.,–see Baldwin-Ehret-Hill, Inc. 10a/Ba; 10c/Eh; 10c/BaL
Ekco Products Co.,–see Kennatrack Corp., Sub. Ekco Products Corp. 18d/Ke
Electric Aire Engineering Corp. 27e/EL
Electric Cord Co. 33a/EL
Electric Power Door Co., Inc. 16i/EL
Electric Time Co., Inc. 34b/EL
Electromode, Div. Commercial Controls Corp. 31h/EL
Elgin-Butler Brick Co. 4f/EL
Elkay Mfg. Co. 25b/Elk
Elkhart Brass Mfg. Co., Inc. 30f/EL
Elkington Mfg. Co. 26b/EL
Ellison Bronze Co., Inc. 16a/EL
Ellison Louvre Co., Inc. 20d/EL
Emerson Electric Mfg. Co.
•*fans and blowers* 31e/Em
•*fans, ventilators, chimes* 25a/Em
•*lighting equipment* 33a/Em
Emerson-Pryne Co.,–see Emerson Mfg. Co. 25a/Em; 31e/Em; 33a/Em
Empire Varnish Co.,–see Waterlox Div., Empire Varnish Co. 15/Wa
Enamel Products Co.,–see Korok Inc., Div. Enamel Products Co. 23e/Ko
Ender Monarch Corp. 33a/En
Energy Elevator Co. 24a/En
Engineered Products Co. 18g/En
Engineering Products & Specialties, Inc.,–see Alumiline Corp., Div. Engineering Products & Specialties, Inc. 16a/ALu
Engwald Corp. 31e/En
Equal-Aire Incinerator Div.,–see Sargent Building Specialties Inc., Equal-Aire Incinerator Div. 28a/Sar
Equipment Mfg. Co., Inc. 23d/Eq
Erie Enameling Co. 3c/Er
Esco Elevators, Inc. 24a/Es
Eska Products, Inc. 23J/Es
Espro Tubing, Div. Union Asbestos & Rubber Co. 2f/Es
Estey Corp. 23f/Es
Euclid Chemical Co. 9/Eu
Evans Products Co.,–see Haskelite Mfg. Corp., sub. Evans Products Co. 3e/Ha; 16c/Has
Executone, Inc. 34a/Ex
Extruded Louver Corp. 20d/Ex

f

F & A Laboratories, Inc. 2a/Fa
Fabricated Products Co. 8b/Fa
Facing Tile Institute 4f/Fa
Fair, D. L., Lumber Co. 13J/Fa
Fair-Play Scoreboard Co. 23k/Fa
Fairbanks, Morse & Co.
•*generating sets* 32c/Fa
•*pumps* 30a/Fa
Fairhurst, John T., Co., Inc.
•*folding walls* 22d/Fa
•*wardrobes* 23d/Fa
Fanon Electronic Industries, Inc. 34a/Fa
Farley & Loetscher Mfg. Co.
•*wood doors* 16c/Fa
•*wood windows* 17c/Far
Fasco Industries, Inc. 31e/Fa
Federal Cement Tile Co. 2d/Fe
Federal Equipment Co.,–see Cutler Mail Chute Co., Sub. Federal Equipment Co. 23b/Cu
Federal Seaboard Terra Cotta Corp. 4e/Fe
Federal Windows Mfg. Co., Inc. 17b/Fe
Felters Co.,–see Woolsuede, Div., Felters Co. 13k/Wo
Fenestra, Inc.
•*aluminum windows* 17a/Fe
•*curtain wall systems* 3a/Fe
•*floor and roof panels systems* 2c/Fe
•*hollow metal door units* 16b/Fe
•*wall panels* 3b/Fe
–see also Davidson Enamel Products, Inc., sub. Fenestra, Inc. 3c/Da
Fentron Industries, Inc. 17a/Fen
Fenwal Inc. 34a/Fe
Ferrometal Div., Milwaukee Stamping Co. 22b/Fe
Fiat Metal Mfg. Co.
•*shower stalls* 27c/Fi
•*toilet partitions* 22b/Fi
Fiberesin Plastics Co. 14b/Fi
Fibreboard Paper Products Corp.,–see Pabco Floor Covering Div., Fibreboard Paper Products Corp. 13i/Pa
Filon Plastics Corp. 7d/Fi
Filtrine Mfg. Co. 30d/Fi
Finishing Lime Assn. of Ohio 12e/Fi
Firebar Door Div., Rysdon Products Co. 16m/Fi
Fireproof Products, Inc. 2d/Fi
Fisher Scientific 23L/Fi
Fisher Skylights, Inc. 20b/Fi
Fiske, J. W., Architectural Metals, Inc. 6e/Fi
Fleet of America, Inc.
•*aluminum windows* 17a/FLA
•*monumental, commercial aluminum windows* 17a/FL
•*sliding glass doors* 16d/FL
Fleming Steel Co. 16h/FL
Fletcher, H. E., Co.
•*granite* 4a/FLe
•*granite highway products* 4a/FL
Flexicore Co., Inc. 2d/FL

Flexotile Floor Co. 13h/Fl
Flintkote Co.
–Building Materials Div. 8a/Fl
–Flooring & Adhesive Div. 13i/Fl
–Industrial Products Div. 9/Fl
–Insulrock Div. 2d/Fli
–see also Orangeburg Mfg. Co., Div. Flintkote Co. 29a/Or; 32b/Or; 32b/Ora
–see also Van-Packer Co., Div. Flintkote Co. 31k/Va
Flintridge Corp. 17a/Fli
Flockhart Foundry Co.
–Armored Concrete Div., Flockhart Foundry Co. 6i/Fl
–Construction Castings Div., Flockhart Foundry Co. 6i/Fl
Florence Mfg. Co., Inc. 34a/Fl
Flour City Ornamental Iron Co.
•*curtain walls* 3a/Flo
•*doors* 16a/Fl
•*windows* 17a/Flo
Fluor Products Co.
•*arches, trusses, lamella roofs* 2e/Fl
•*cooling towers* 30b/Fl
Flush-Metal Partition Corp. 22b/Fl
Flynn, Michael, Mfg. Co.
•*air conditioning* 31a/Fl
•*aluminum curtain walls* 3a/Fly
•*aluminum windows* 17a/Fly
•*steel windows* 17b/Fl
Follansbee Steel Corp. 8b/Fo
Folmar, R. H., Co. 17a/Fo
Food Warming Equipment Co. Inc. 26d/Foo
Formica Corp., Sub. Cyanamid 14a/Fo
Fort Howard Paper Co. 27e/Fo
Forty-Eight Insulations, Inc.
•*acoustical ceiling board* 11a/Fo
•*insulating materials* 10a/Fo
•*panel insulations* 3f/Fo
Fourco Glass Co. 7a/Fo
Franklin Research Corp.,–see Wheeler-Fullerton Lighting Div., Franklin Research Corp. 33a/Wh
Frantz Mfg. Co. 16i/Fr
French Creek Granite Co., Inc. 4a/Fr
Frick Co. 31a/Fr
Friedrich, E. H., Co. 16b/Fr
Frigidaire Div., General Motors Corp. 25a/Fr
Frontier Fence Co.,–see Dorian International Inc. 4d/Do
Fry, Lloyd A., Roofing Co. 8a/Fr
Fuller, H. B., Co. 3f/Fu
Fyr-Fyter Co. 30f/Fy

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G R Products Inc., Steel Div. 22a/Ga
Garnett Church Furniture & Mfg. Co. 23h/Ga
Gates & Sons, Inc. 2i/Ga
Gates Rubber Co. 2i/Gas
Gateway Engineering Co.
•*construction accessories* 2i/Gat
•*electrical underfloor duct system* 32b/Ga
Gateway Erectors, Inc., Sub. Gateway Engineering Co. 2a/Ga
Gauff Corp.–see New York Silicate Book Slate Co., Inc. 23a/Ne
General Air Conditioning Corp. 25b/Ge
General Bronze Corp.
•*curtain walls, ornamental metalwork* 3a/Ge
•*revolving doors* 16f/Ge
•*windows* 17a/Ge
–see also Alwintite Div., General Bronze Corp. 16d/Al; 17a/Alw
General Electric Co.
–Air Conditioning Dept. 31a/Gen
–Air Conditioning Dept., Major Appliance Div. 31a/Ge
–Appliance and Television Receiver Div. 25a/Gen
–Commercial Equipment Dept. 30d/Ge
–Laminated Products Dept. 14a/Ge
–X-Ray Dept. 23L/Ge
see also Hotpoint, Div. General Electric Co. 25a/Hot; 26c/Hot
General Foam Plastics Corp. 10a/Ge
General Lead Construction Corp. 22e/Ge
General Lighting Co. 33a/Ge
General Motors Corp.,
–see Frigidaire Div., General Motors Corp. 25a/Fr
General Plywood Corp. 16c/Ge
General Portland Cement Co., Trinity White Dept. 4i/Ge
General Tire & Rubber Co., Building Materials Div.
•*flooring* 13i/Ge
•*vinyl wall coverings* 13k/Ge
General Welding & Fabricating Co. 22b/Ge
General Woodcraft Co.,–see Woodco Corp. Div. 17c/Wo
Geneva Hospital Casework, Div. Acme Steel Co. 23L/Gen
Geneva Modern Kitchens, Div. Acme Steel Co.
•*kitchen cabinets and sinks* 25b/Gev
•*steel cabinets* 23i/Ge
Georgia Granite Co. 4a/Ge
Georgia-Pacific Corp.
•*hardboards* 14d/Geo
•*overlaid plywood* 5b/Ger
•*prefinished plywood* 5b/Geo
•*sheathing, siding* 8b/Ge
•*wood products reference guide* 5a/Ge
Gering Plastics Div., Studebaker-Packard Corp. 9/Ger
Gerwin Industries, Inc., Thermo-Base Div. 31f/Ge
Getty, H. S., & Co., Inc. 18b/Ge
Geyser, E. K., & Co. 3a/Gey
Gillespie, Robert, Co. 24d/Gi
Gillis & Geoghegan Hoist Corp. 24d/Gil
Glass Shower Door Co., Inc.
•*shower enclosures* 27c/Gl
•*sliding glass walls* 16d/Gl
Glidden Co.
•*paint* 15/Gli
•*plastic tile finish* 15/Gl
Glide Windows, Inc.
•*aluminum rolling windows* 17a/Gl
•*aluminum sliding doors* 16d/Gli
Glidorama Div., Whizzer Industries, Inc. 17a/Gli
Globe Hoist Co. 24a/Gl

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Globe Marble & Granite Corp. 4a/Gl
Globe-Wernicke Co. 23f/Gl
Glynn-Johnson Corp. 18e/Gl
Goder, Joseph, Inc. 28a/Go
Goder Incinerator Corp.,
–see Brulé Incinerator Corp. 28a/Br
Goldsmith Metal Lath Co. 2c/Go
Goodrich, B. F., Co., Flooring Products 13i/Go
Goodrich, B. F., Coated Fabrics Dept. 13k/Go
–Sponge Products Div. 13L/Go
Goodyear Tire & Rubber Co. 13i/Goo
Gotham Chalkboard & Trim Co., Inc. 23e/Go
–see also Gotham Materials, sub. Gotham Chalkboard & Trim Co., Inc. 13i/Got
Gotham Lighting Corp. 33a/Go
Gotham Materials, sub. Gotham Chalkboard & Trim Co., Inc. 13i/Got
Gould-Mersereau Co., Inc. 19d/Go
Gow Div.,–see Raymond Concrete Pile Co., Div. Raymond International Inc. 1a/Ra
Grace, W. R., & Co.,–see Dewey & Almy Chemical Div., W. R. Grace & Co. 9/De
Grade-Aid Corp., sub. Maine Mfg. Co. 23i/Gr
Granco Steel Products Co., Sub. Granite City Steel Co.
•*reinforcement forms* 2c/Gr
•*roof decks* 2c/Gra
•*steel forms* 2a/Gr
•*steel roof decking* 2c/Grn
Grand Rapids Hardware Co. 18a/Gr
Grand Rapids Sectional Equipment Co. 23L/Gr
Granite City Steel Co.,–see Granco Steel Products Co., Sub. Granite City Steel Co. 2a/Gr; 2c/Gr; 2c/Gra; 2c/Grn
Grant Pulley & Hardware Corp. 18d/Gr
Granux Corp. 4d/Gra
–see also Modur Co., Div. Granux Corp. 4d/Mod
Great American Industries, Inc.,–see Rubatex Div., Great American Industries, Inc. 8b/Ru; 10b/Ru
Great Lakes Carbon Corp., Perlite Dept.
•*insulating concrete* 10a/Gr
•*plaster aggregates* 12d/Gr
Grid Flat Slab Corp. 2a/Gri
Gridwall Co. 3a/Gr
Grinnell Co., Inc. 30e/Gr
Grossman Steel Stair Corp. 6h/Gr
Guardian Chemical Co. 9/Gu
Guastavino, R., Co. 2e/Gu
Guilbert, Inc. 24c/Gu
Guild Hall Studios, Inc. 23h/Gu
Gustin-Bacon Mfg. Co.
•*acoustical ceiling board* 11a/Gu
•*duct insulation* 10a/Gu
•*pipe insulation* 10c/Gu
Guth, Edwin F., Co. 33a/Gu

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H. & B. Enterprise Corp. 22a/Ha
Hachmeister-Inc., see Hako Building Products, Div. Mastic Tile Corp. of America 13i/Hak
Haertel, W. J., & Co. 11b/Ha
Hako Building Products Div., Mastic Tile Corp. of America 13i/Hak
Haldeman-Homme Mfg. Co. 23i/Ha
Hall-Mack Co. 27d/Ha
Hankins & Johann, Inc.
•*aluminum doors* 16a/Ha
•*architectural aluminum* 6e/Ha
•*curtain walls* 3a/Ha
Hanley Co. 4f/Ha
Hanna Paint Mfg. Co. Inc. 15/Ha
Hansson, Elof, Inc., Acoustical Div. 11a/Ha
Hardwood Products Corp. 16c/Ha
Harnischfeger Corp. 32c/Ha
Harper, H. M., Co.,–see Harrison-Weise Div., H. M. Harper Co. 18c/Ha
Harrington & King Perforating Co., Inc. 31f/Ha
Harris, D. C., Co. 9/Ha
Harris Barrier, Inc. 23p/Ha
Harris Mfg. Co. 13J/Har
Harrison-Weise Div., H. M. Harper Co. 18c/Ha
Hart & Cooley Mfg. Co. 31f/Har
Harter Corp.
•*office chairs* 23o/Har
•*stack chairs* 23o/Ha
Hartmann-Sanders Co. 5c/Ha
Haskelite Mfg. Corp., sub. Evans Products Co.
•*curtain walls* 3e/Ha
•*institutional doors* 16c/Has
Hastings Pavement Co., Inc. 13i/Has
Hatco Corp. 26b/Ha
Haughton Elevator Co. 24a/Ha
Hauserman, E. F., Co. 22a/Hau
Hausman Steel Co.
–see Capitol Battens, Div. Hausman Steel Co. 22a/Ca
–see McMillan Products Div., Hausman Steel Co. 9/Mc
Haven-Busch Co. 2f/Ha
Haws Drinking Faucet Co. 30d/Ha
Hazen Metal Products, Inc. 16g/Ha
Heat-X, Inc.,–see Dunham-Bush Inc., Brunner Div. 31a/Du
Helio-Therm Control Corp. 19c/He
Hendrick Mfg. Co. 31f/He
Henges Co., Inc. 22a/He
Herrick Refrigerator Co. 26a/He
Herring-Hall-Marvin Safe Co. 23b/He
Hersey Mfg. Co. 30i/He
Hexcel Products Inc. 33a/He
Hillyard Chemical Co. 13m/Hi
Himmel Brothers Co.
•*entrances* 16a/Hi
•*store fronts* 21/Hi
Hirschman-Pohle Co., Inc. 20c/Hi
Hobart Mfg. Co. 26b/Ho
Hoe Corp. 5c/Ho
Hogan, C. T., & Co.,
–see Alumiseal Corp. 10b/AL; 10b/ALi; 10b/ALm; 10b/ALu; 10b/ALw
Hohmann & Barnard, Inc. 2i/Ho
Hohmann & Barnard of Alabama, Inc. 4h/Ho

Holcomb & Hoke Mfg. Co., Inc.
•*folding partitions, doors* 16e/Ho
•*folding partitions* 22d/Ho
•*interior decorative screens, grillework* 22h/Ho
Hollingshead, R. M., Corp. 9/Hl
Homasote Co. 10a/Ho
–see also Nova Sales Co., Sub. Homasote Co. 8d/No
Hope's Windows, Inc.
•*aluminum windows* 17a/Ho
•*steel windows* 17b/Ho
Horn, A. C., Cos., Subs. & Divs. Sun Chemical Corp. 9/Ho
Horn Div., Brunswick-Balke-Collender Co.
•*basketball backstops* 23k/Ho
•*folding gym seats* 23J/Ho
•*folding partitions* 22d/Hor
•*folding stages and steps* 23g/Ho
Horner Flooring Co. 13J/Ho
Hotpoint, Div. General Electric Co.
•*commercial cooking equipment* 26c/Hot
•*kitchen and laundry equipment* 25a/Hot
Houze Glass Corp. 7a/Ho
Hubbell, Harvey, Inc. 32b/Hu
Hubbellite Corp. 13h/Hu
Hunter Div., Robbins & Meyers, Inc. 31h/Hu
Hunter Douglas Div.,–see Bridgeport Brass Co., Hunter Douglas Div. 19d/Br; 19e/Bi
Huntington Furniture Corp. 23o/Hu
Huntington Laboratories, Inc. 13m/Hu
Hussey Mfg. Co., Inc. 23J/Hu
Hyde-Murphy Co. 16c/Hy
Hydrometals, Inc. 6b/Hy
–see also Illinois Zinc Co., Div. Hydrometals, Inc. 8g/IL
Hydrotherm Inc. 31g/Hy

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Ickes-Braun Greenhouse Mfg. Co. 2J/Ic
Ideal Indstries, Inc. 32b/Id
Ilg Electric Ventilating Co. 31e/IL
Illinois Zinc Co., Div. Hydrometals, Inc. 8g/IL
–see also Hydrometals, Inc. 6b/Hy
Imperial Brass Mfg. Co. 27e/Im
Impervitex Dept.,–see Chase Bag Co., Impervitex Dept. 8a/Ch
In-Sink-Erator Mfg. Co. 25a/In
Incinerator Products Co. 28a/In
Inclinator Co. of America 24a/In
Independent Nail & Packing Co. 18a/In
Independent Register Co. 31f/In
Indiana Limestone Institute 4c/Ind
Industrial Acoustics Co., Inc. 11c/In
Industrial Chemical Laboratories, Inc. 13m/In
Industrial Corp. of America–see Atlas Overhead Door Co., Div., Industrial Corp. of America 16i/At
Industrial Engineering & Equipment Co. 31h/In
Industrial Engineering Works 17a/In
Ingram-Richardson Mfg. Co. 3c/Ing
Inland Steel Products Co.
•*access doors* 16J/In
•*acoustical roof deck* 11a/In
•*curtain walls* 3b/In
•*floor panels* 2b/In
•*metal lath* 12a/In
•*steel forms* 2a/In
•*steel roof decks* 2c/InL
Insinger Machine Co. 26b/In
In-Sink-Erator Mfg. Co. 25a/In
Insulite Div., Minnesota & Ontario Paper Co.
•*building products* 10a/Ins
•*construction accessories* 2i/Ins
Insulrock Div.,–see Flintkote Co., Insulrock Div. 2d/FLi
Integro, Inc. 13g/In
Interior Steel Equipment Co. 23d/In
International Bronze Tablet Co., Inc. 6f/In
International Molded Plastics, Inc., Structoglas Div. 7d/In
International Steel Co. 16h/Int
–Revolving Door & Entrance Div. 16f/In
International Swimming Pool Corp., Commercial Pool Div. 23k/In
International Telephone & Telegraph Corp.,–see Kellogg Switchboard & Supply Co., Communications Div.
International Telephone & Telegraph Corp. 34a/Ke
Ipik Door Co., Inc. 16c/Ip
Iron Fireman Mfg. Co. 31J/Ir
Irving Subway Grating Co., Inc. 13a/Ir
Isenhour Brick & Tile Co. 4f/Is

J

Jamestown Metal Products, Inc. 23L/Ja
Jamestown Veneer & Plywood Corp. 16c/Ja
Jamison Cold Storage Door Co. 23c/Ja
–Sound Reduction Door Div. 16m/Ja
Janitrol Heating & Air Conditioning Div., Surface Combustion Corp. 31b/Ja
Jenn-Air Products Co., Inc. 20c/Je
Jennison-Wright Corp. 13J/Je
Jewett Refrigerator Co., Inc. 23L/Je
Jiffy Join, Inc. 22c/Ji
Joanna Western Mills Co.
•*wall coverings* 13k/Jo
•*window shades* 19c/Jo
Johns-Manville
•*acoustical materials* 11a/Jo
•*asbestos-cement shingles* 8c/Jo
•*asbestos Transitop* 8b/Jo
•*asphalt-asbestos floor tile* 13i/Joh
•*building insulation* 10a/Jo
•*built-up roofing* 8a/Jo
•*cement additives* 9/Jo
•*corrugated asbestos Transite* 8b/Joh
•*fiber glass panels* 7d/Jo
•*partitions, walls* 22a/Jo
•*plastic tile flooring* 13i/Jo
Johnson Plastic Tops, Inc. 14a/Jo
Johnson Rubber Co., Special Products Div. 13i/Jon

Jordan Commercial Refrigerator Co. 26a/Jo
Josam Mfg. Co. 30g/Jo
Joy Mfg. Co. 31e/Jo
Just Mfg. Co.
•*hospital equipment* 23L/Ju
•*residential sinks* 25b/Ju

k

K-M Building Products Co. 12a/Ka
Kaiser Aluminum & Chemical Sales, Inc.
•*aluminum products* 6a/Ka
•*copings and gravel stops* 8g/Kai
•*industrial building products* 8b/Ka
•*ornamental extrusions* 6a/Kai
•*thresholds and window sills* 19b/Ka
Kaiser Mfg. Co. 13c/Ka
Kaiserhof Industries, Inc. 16d/Ka
Kalman Floor Co., Inc. 13h/Ka
Kalwall Corp.
•*plastic building panels* 3e/Ka
•*skylight* 20b/Ka
Kane Mfg. Corp. 19a/Kan
Katolight Corp. 32c/Ka
Kaustine Furnace & Tank Corp. 30h/Ka
Kawneer Co.
•*aluminum windows* 17a/Ka
•*doors and entrances* 16a/Kaw
•*store front construction* 21/Kaw
•*sun control products* 19e/Ka
•*wall facings* 6d/Ka
•*wall systems* 3a/Ka
Keasbey & Mattison Co.
•*asbestos-cement* 8c/Ke
•*asbestos insulation* 10a/Ke
Keflex Mfg. Div., U.S. Flexible Metallic Tubing Co.. 29a/Ke
Kellogg-Mann Corp. 28a/Ke
Kellogg Switchboard & Supply Co., Communications Div. International Telephone & Telegraph Corp.. 34a/Ke
Kennatrack Corp., Sub. Ekco Products Co..... 18d/Ke
Kennecott Copper Corp.,
–see Chase Brass & Copper Co., Inc., Sub. Kennecott Copper Corp.... 8g/Ch; 19a/Cha; 29a/Ch
Kennedy, David E., Inc.,–see Kentile, Inc. 13i/Ke
Kent-Moore Organization, Inc. 31e/Ke
Kentile, Inc. 13i/Ke
Kentucky Metal Products Co. 22f/Ke
Kerrigan Iron Works, Inc..... 13a/Ker
Ketcham, G. M., Mfg. Corp.
•*bathroom equipment* 27d/Ke
•*rolling glass walls*..... 16d/Ke
Kewanee Boiler Div.,–see American-Standard Industrial Div. 31a/Ame
Keyless Lock Co. 23b/Ke
Keystone Shower Door Co. 27c/Ke
Keystone Steel & Wire Co.
•*masonry reinforcing* 4h/Ke
•*reinforcing lath* 12a/Ke
•*roofing reinforcing* 2d/Ke
Kiefer, Adolph & Co. 23k/Ki
Kimberly-Clark Corp. 27e/Ki
Kinnear Mfg. Co. 16g/Ki
Kirsch Co. 19d/Ki
Kitchen Maid Corp. 25b/Ki
Klemp International 6e/KL
Klemp Metal Grating Corp. 13a/KL
Klip-Lock Fastening Devices Inc. 13J/KL
Knape & Vogt Mfg. Co. 18g/Kn
Knickerbocker Steel Partition Co., Inc. 22b/Kn
Knight, H. W., & Son, Inc. 6f/Kn
Knight Mfg. Co..... 6f/Kni
Knight, Stanley, Corp. 26d/Kn
Knoll Associates, Inc. 23o/Kn
Knoxville Scenic Studios Inc. 23g/Kn
Koch Refrigerators, Inc. 26a/Ko
Koffler Sales Corp. 13i/Ko
Koppers Co., Inc.
–Tar Products Div. 8a/Ko
–Wolman Preservative Dept. 5d/Kop
–Wood Preserving Div. 5d/Ko
Korok Inc., Div. Enamel Products Co. 23e/Ko
Koven, L. O., & Bro., Inc. 31g/Ko
Kraloy Plastic Pipe Co. 29a/Kr
Kuhls, H. B. Fred 9/Ku
Kurdon, Inc. 19d/Ku

L

LCN Closers, Inc. 18e/La
Laclede Steel Co. 2f/La
La Crosse Cooler Co. 26a/La
Lake Shore Markers Inc..... 6f/La
Lake States Engineering Corp. 1a/La
Lally Bros. Co. 2g/LaL
Lally Column Co. 2g/Lay
Lambert Corp. 9/La
Lamella Roof Associates 2e/La
Lamont & Riley Co. 8g/La
Lamson Corp. 24a/La
Landon Inc. 23k/La
Larsen Products Corp.
•*concrete bonding agent* 4i/La
•*plaster bonding agent* 12e/La
Lastik Products Div., Wampum Products Inc. 2d/La
Laverne, Inc. 23o/La
Lawrence Metal Products, Inc..... 6e/La
Lawrence Steel Co. 16g/La
Lawson, F. H., Co. 27d/La
Lead Industries Assn.
•*roofing and flashing* 8b/Le
•*sheet lead for plumbing* 29a/Le
Lees, James, & Sons Co..... 13L/Le
LeFebure Corp. 23b/Le
Lemlar Corp.–see Lemlar Mfg. Co., Div. Lemlar Corp. 19e/Le
Lemlar Mfg. Co., Div. Lemlar Corp..... 19e/Le
Lenawee Peerless, Inc. 4h/Le
Levolor Lorentzen, Inc. 19d/Lo
Levow, David 8g/Le
Lewin-Mathes Co., Div. Cerro de Pasco Corp.... 29a/Lew

Lewis Asphalt Engineering Corp. 9/Le
Lexsuco Inc.
•*built-up roofing* 8a/Le
•*waterstops* 9/Lex
Libbey-Owens-Ford Glass Co.
•*glass* 7a/Li
•*glass curtain wall material* 3e/Li
•*glass doors* 16d/Lib
Lightning Protection Institute 32d/Li
Lightolier 33a/Lia
Limbach Co. 8b/Li
–Curtain Wall Dept. 3a/Li
Lincoln Mfg. Co. Inc. 26d/Li
Lindsay Co. 30b/Li
Line Material Industries, McGraw-Edison Co. 33c/Li
Linen Supply Assn. of America 27e/Li
Ling-Altec Electronics, Inc.,–see Altec Lansing Corp., sub. Ling-Altec Electronics, Inc. 34a/AL
Lingo, John E., & Son, Inc.
–see Acme Flagpole Div., John E. Lingo & Son, Inc. ..6g/Ac
Litecontrol Corp. 33a/Lie
Litecraft Mfg. Corp. 33a/Lin
Livers Bronze Co. 6e/Li
Lockwood Hardware Mfg. Co. 18e/Lo
Logan-Long Co. 8a/Lo
Lone Star Ceramics Co. 13c/Lo
Lord & Burnham, Div. Burnham Corp. 2J/Lo
Louisville Cement Co., Inc. 4i/Lo
Louver-Lite Corp.
•*louvers* 20d/Lo
•*sun control devices* 19e/Lo
Lowell Mfg. Co. 34a/Lo
Loxit Systems, Inc.
•*chalkboard mounting system* 23e/Lo
•*floor laying systems* 13J/Lo
Ludlow Papers, Inc. 8h/Lu
Ludowici-Celadon Co.
•*floor tile* 13c/Lu
•*tile roofing* 8f/Lu
Luminous Ceilings Inc. 33a/Lum
Lund, Thor, Co. Inc. 24a/Lu
Lynch Asbestos Co. 7d/Ly
Lynn-Sign Moulded Plastic Co., Inc. 23a/Ly
Lyon Metal Products, Inc. 23d/Ly

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MacArthur Co. 3c/Ma
Macomber Inc. 2f/Ma
Macton Machinery Co., Inc. 23g/Ma
Mahon, R. C., Co.
•*acoustical and troffer forms* 2a/Ma
•*cellular steel sub-floors* 2b/Mah
•*long-span structural roof decks* 2c/Ma
•*metal curtain walls, fire walls* 3a/Ma
•*rolling steel doors* 16g/Ma
•*steel roof decks* 2c/Mah
Maine Mfg. Co., –see Grade-Aid Corp., sub. Maine Mfg. Co. 23i/Gr
Maintenance Inc. 9/Ma
Majestic Co., Inc. 31L/Ma
Major Industries, Inc. 25a/MaJ
Manhattan Terrazzo Brass Strip Co., Inc. 13g/Ma
Mankato Stone Co. 4c/Ma
Mapes Industries, Inc. 19e/Ma
Maple Flooring Mfrs. Assn. 13J/Ma
Marble Institute of America, Inc. 13f/Ma
Marco Co. 20a/Ma
Marietta Concrete Div., American-Marietta Co. ..3e/Mar
Marker Forge Co.
•*pressure cookers* 26c/Ma
•*shelving* 23c/Ma
–Hospital Equipment Div. 23L/Ma
Marley Co. 30b/Ma
Marlo Coil Co. 31a/Mar
Marmet Corp.
•*aluminum windows* 17a/Ma
•*doors and entrances* 16a/Mar
Marsh Products Corp. 2e/Ma
Marsh Wall Products, Inc. Sub. Masonite Corp. ..14b/Ma
Marshall-McMurray Co. 19d/Ma
Martin-Fireproofing Corp.
•*concrete roof, floor deck* 2d/Mar
•*insulating roof deck* 2d/Mat
Martin-Senour Co. 15/Ma
Masonite Corp.
•*concrete forms* 2i/Ma
•*panel products for exterior applications* 8b/Ma
•*panel products for interior applications* 14d/Mas
•*technical data* 8b/Mas
–see also Marsh Wall Products, Inc., Sub. Masonite Corp. 14b/Ma
Master Builders Co., Div. American-Marietta Co. ..9/Mas
Mastic Tile Corp. of America
•*Matico floor tile* 13i/Ma
•*rubber and vinyl floor tile* 13i/Mas
–see also Hako Building Products Div., Mastic Tile Corp. of America 13i/Hak
–see also Wright Mfg. Co., Div. Mastic Tile Corp. of America 13i/Wr
Matot, D. A., Inc. 24a/Ma
Matthews, Jas. H., & Co. 6f/Ma
Matthiessen & Hegeler Zinc Co. 8g/Mat
Maysteel Products, Inc. 23L/May
Maytag Co. 25a/May
McGraw-Edison Co.
–see Line Material Industries, McGraw-Edison Co. ..33c/Li
–see Toastmaster Div., McGraw-Edison Co. 26c/To
McIntire, F. N., Brass Works, Inc. 30f/Mc
McKee Door Co. 16i/Mc
McKinley, O. O., Co., Inc. 19e/Mc
McKinley Designs 6e/Mc
McKinley Iron Works
•*abrasive castings* 13b/Mc
•*construction castings* 6i/Mc
•*grilles and ventilators* 20d/Mc
McMillan Products Div., Hausman Steel Co. 9/Mc

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McNaulin Inc. 28a/Mc
McPhilben Lighting Inc. 33a/Mc
McShane Bell Foundry Co., Inc. 23h/Mc
Meadow Steel Products, Inc.
•*construction accessories* 2i/Me
•*masonry wall reinforcing* 4h/Me
Meadows, W. R., Inc. 9/Me
Medart, Fred, Products, Inc. 23J/Me
Medart Lockers, Inc. 23d/Med
Medusa Portland Cement Co. 4i/Me
Mengel Co. 16c/Me
Merchant & Evans Co. 16h/Me
Mesker Brothers
•*aluminum windows and doors* 17a/Me
•*curtain walls* 3a/Me
•*hollow metal doors* 16b/Me
•*steel windows* 17b/Me
Met-L-Wood Corp. 14a/Me
Metal Lath Mfrs. Assn. 12a/Me
Metal Roof Deck Technical Institute 2c/Me
Metpar Steel Products Corp. 22b/Me
Metropolitan Brick, Inc. 4f/Me
Miami Cabinet Div., Philip Carey Mfg. Co.
•*access doors* 16J/Mi
•*bathroom accessories* 27d/Mi
•*fans* 31e/Mi
Miami Window Corp. 17a/Mi
Michaels Art Bronze Co.
•*exhibit cases* 3a/Mi
•*metal wall systems* 3a/Mic
Michel & Pfeffer Iron Works, Inc. 6e/Mi
Mid-West Chandelier Co. 33a/Mi
Miller Co. 33a/MiL
Miller Sliding Glass Door Co., Inc. 16d/Mi
Mills Co.
•*office partitions* 22a/Mi
•*toilet partitions* 22b/Mi
Milwaukee Stamping Co. 18e/Mi
–see also Ferrometal Div., Milwaukee Stamping Co. 22b/Fe
Minneapolis-Honeywell Regulator Co.
•*air cleaners* 31d/Mi
•*controls* 31i/Mi
•*hotel/motel master systems* 34b/Mi
Minnesota Mining & Mfg. Co., Adhesives, Coatings & Sealers Div.
•*adhesives, flooring and wall covering* 13i/Mi
•*curtain wall sealers* 3f/Mi
Minnesota & Ontario Paper Co.,
–see Insulite Div., Minnesota & Ontario Paper Co. 2i/Ins; 10a/Ins
Minwax Co. Inc.
•*masonry treatments* 9/Mi
•*wood finishes* 15/Min
Miracle Adhesives Corp.
•*adhesives for tile setting* 13c/Mir
•*building insulation* 10a/Mir
Mirawal Div., Birdsboro Steel Foundry & Machine Co.
•*curtain walls* 3c/Mi
•*porcelain enamel* 6d/Mi
Mississippi Glass Co. 7a/Mi
Mitchell Engineering Co. 2J/Mi
Mitchell, Lloyd E., Inc.,–see Air Path Products Co., Div. Lloyd E. Mitchell, Inc. 20d/Ai
Mitchell Mfg. Corp. 23i/Mi
Mitchell Rand Mfg. Corp. 8g/Mi
Modern Venetian Blinds, Div. Rodney Metals, Inc. 19d/Mo
Modernwood Co., Div. Standard Plywoods, Inc. 13J/Mo
Modu-Wall, Inc. 3a/ML
Modur Co., Div. Granux Corp. 4d/Mod
Moe Light Div., Thomas Industries, Inc. 33a/Mo
Moeschl-Edwards Corrugating Co., Inc. 16g/Mo
Monarch Elevator & Machine Co. 24a/Mo
Monarch Tile Mfg. Co. 13c/Mo
Monsanto Chemical Co., Organic Chemicals Div. 5d/Mo
Monteath, J. H., Co. 5b/Mo
Montgomery Elevator Co. 24a/Mon
Moore, Benjamin & Co. 15/Moo
Moore, Goodloe E., Inc. 10a/Mo
Moore Brothers Co. 27e/Mo
Moore, P. O., Inc., Sub. Sunroc Corp. 18e/Moo
Morgan-Francis Co., Inc.,–see Aabec Pole Div., Morgan-Francis, Inc. 6g/Aa
Morrison Steel Products, Inc. 16i/Mo
Morse Boulger Inc. 28a/Mo
Mo-Sai Associates, Inc. 4d/Mos
Mosaic Tile Co. 13c/Mos
Mosher Mfg. Co., Inc. 16h/Mo
Mosler Dropository Corp. 23b/Mo
Mosler Safe Co. 23b/Mos
Moultile, Inc. 13i/Mo
Moynahan Bronze Co. 3a/Mo
Mueller Brass Co. 29a/Mu
–see also Valley Metal Products Co., Sub. Mueller Brass Co. 3a/Va; 16a/Va; 17a/Va
Mueller Climatrol, Div. Worthington Corp. 31b/Mu
Mueller Steam Specialty Co., Inc. 29a/Mue
Muellermist Irrigation Co. 30e/Mu
Multi-Clean Products, Inc. 13m/Mu
Multi Electric Mfg., Inc. 33a/Mu
Munchhausen Soundproofing Co., Inc. 16m/Mu
Munro Waterproofings, Inc. 9/Mu
Murals Inc. 13c/Mu
Murray Tile Co. Inc. 13c/Mur
Musson, R. C., Rubber Co. 13i/Mu
Muzak Corp. 34a/Mu

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Narragansett Gymnasium Equipment Co. 23k/Na
Nash, Cadmus & Voelker Inc. 28a/Na
Natco Corp. 4f/Na
National Building Granite Quarries Assn., Inc. 4a/Na
National Chemical & Mfg. Co. 15/Na
National Cotton Council
–see Canvas Awning Institute Inc. 19e/Ca
National Dryers,–see World Dryer Corp. 27e/Wo
National Electric Div., H. K. Porter Co. 32b/Na
National Folding Wall Corp. 22d/Na

National Gypsum Co.
•asbestos-cement roofing, shingles, siding.....8c/Na
•gypsum plasters and lime.....12e/Na
•gypsum roof decks.....2d/Na
•gypsum wallboard.....12c/Nat
•insulation products.....10a/Na
•metal lath, gypsum lath.....12a/Na
•paint.....15/Nat
•panels, roofing, siding.....8b/Na
•sound control.....11a/Na
National Lime Assn.....4i/Na
National Mfg. Co.....18d/Nat
National Metallic Sash Co.....17b/Na
National Oak Flooring Mfrs.' Assn.....13J/Na
National Plastic Products Co.....14a/Na
National Rubber Machinery Co., Plumbing Equipment Div.....26b/Na
National Slag Assn.....4i/Nat
National Steel Corp.,–see Stran-Steel Corp., Div. National Steel Corp.....2f/Str
National Steel Partition Co., Inc.....22a/Na
National Store Fronts Co. Inc.....16a/Nat
National Supply Co.,–see Spang Underfloor Duct Dept., National Supply Co.....32b/Sp
National System of Garage Ventilation, Inc.....31e/Na
National Terrazzo & Mosaic Assn., Inc.....13g/Na
National Tile & Mfg. Co.....13c/Na
National-U.S. Radiator Corp.,–see Pacific Steel Boiler Div., National-U.S. Radiator Corp.....31g/Pa
Natural Slate Blackboard Co.....23e/Na
Naturalite, Inc. Marketing Agency of Plastic Products of Texas.....20a/Na
Neenah Foundry Co.....6i/Ne
Nelco Metalcraft, Inc.....6f/Ne
Nelson, A. R., Co., Inc.....23d/Ne
–Hospital Div.....22c/Ne
Nelson-Harkins Industries
–see ABC Bulletin & Directory Co., Assoc. Nelson-Harkins Industries.....23a/Ab
–see ABC Letter Co., Affil. Nelson-Harkins Industries.....6f/Ab
Nelson Metalcraft Co.,–see Nelco Metalcraft, Inc. 6f/Ne
Neo-Ray Products, Inc.....33a/Ne
New Castle Products, Inc.
•doors.....16e/Ne
•sound retardant folding partitions.....22d/Ne
–Coated Fabric Div.....13k/Ne
–see also Air Door, Inc., Div. New Castle Products, Inc.....16L/Ai
New England Lead Burning Co., Inc.....22e/Ne
New York Air Brake Co.,–see Aurora Pump Div., New York Air Brake Co.....30a/Au
New York Silicate Book Slate Co., Inc.
•bulletin boards.....23a/Ne
•chalkboards.....23e/Ne
Newman Brothers, Inc.
•aluminum railings.....6e/New
•curtain walls.....3a/Ne
•doors.....16a/Ne
•tablets and letters.....6f/New
Nicholson, W. H., & Co.,–see Robart Partitions, Inc.....22b/Ro
Nik-O-Lok Co.....22b/Nik
Norman Products Co.....31h/No
North American Aviation, Inc.....3a/No
North American Cement Corp.....4i/No
North American Iron & Steel Co., Inc.....6g/No
North Bangor Slate Co.....8e/No
North Carolina Granite Corp.....4a/No
Norton Co.....13g/No
Norton Door Closer Co., Div. Yale & Towne Mfg. Co.
•interior door closers.....18e/No
•overhead electric door operators.....18e/Nor
Norwalk Door Closer Co., Inc.....18e/Now
Notifier Corp.....34a/No
Nova Sales Co., Sub. Homasote Co.....8d/No
NuTone, Inc.....25a/Nu

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O'Connor, Thomas, & Co., Inc.....35/Oc
Octagon Ventilator Co.....20c/Oc
O'Hara Incinerator Co.....28a/Oh
Olin Mathieson Chemical Corp., Metals Div.....6a/Ol
–see also Ramset Fastening System, Winchester-Western Div., Olin Mathieson Chemical Corp..2i/Ram
Olson, Samuel, Mfg. Co., Inc., Div. Cherry-Burrell Corp.....26d/Ol
Omark Industries, Inc.....2i/Om
Omnia Construction Corp.....2d/Om
Onan, D. W., & Sons Inc.....32c/On
Orangeburg Mfg. Co., Div. Flintkote Co.
•conduit.....32b/Or
•pipe and fittings.....29a/Or
•underfloor duct system.....32b/Ora
Oregon Brass Works.....6f/Or
Otis Elevator Co.....24a/Ot
Overdoors Inc.....16i/Ov
Overhead Door Corp.....16i/Ove
Overly Mfg. Co.
•architectural metal products.....8b/Ov
•doors and frames.....16b/Ov
Owens-Corning Fiberglas Corp.
•built-up roofing.....8a/Ow
•curtain wall insulation.....3f/Ow
•fenestration fabrics.....19d/Ow
•form board.....2d/Ow
•high and low temperature insulations.....10c/Ow
•insect screening.....19a/Ow
•noise control products.....11a/Ow
•polarized light panels.....33b/Ow
•roof insulation.....10a/Ow
Owens-Illinois
•curtain walls.....3e/Ow
•glass blocks.....7b/Ow
Owens-Illinois Plywood Co.
•flush doors.....16c/Ow
•movable partitions.....22a/Ow

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Pabco Floor Covering Div., Fibreboard Paper Products Corp. 13i/Pa
Pacific Lumber Co. 5a/Pa
Pacific Rolling Door Co. 16g/Pa
Pacific Steel Boiler Div., National-U.S. Radiator Corp. 31g/Pa
Packard-Bell,–see Bellwood Co. of California, Div. Packard-Bell 16c/Be
Page Fence Assn. 22g/Pa
Paine Lumber Co., Ltd. 16c/Pa
Pam Co. 20a/Pa
Panaview Window Co., Inc. 17a/Pa
Panel-Matic Inc. 22a/Pan
Panel Structures, Inc. 3e/Pa
Panelfab Products, Inc. 16a/Pan
Panelfold Doors, Inc. 16e/Pa
Panelyte Div., St. Regis Paper Co. 14a/Pa
Paragon Electric Co. 32a/Pa
Paragon Swimming Pool Co., Inc. 23k/Par
Pardee, C. G., Co., Inc. 9/Pa
Parkay Div.,–see Wood-Mosaic Corp., Parkay Div. 13J/Wo
Parker, Charles, Co. 27d/Pa
Parkersburg-Aetna Corp.,–see Parkersburg Rig & Reel Co., Div. Parkersburg-Aetna Corp. 2J/Pa
Parkersburg Rig & Reel Co., Div. Parkersburg-Aetna Corp. 2J/Pa
Parkwood Laminates, Inc. 14a/Par
Parr Paint & Color Co., Compound Div. 3f/Pa
Partitions, Inc. 22a/Par
Paulding, John I., Inc. 32b/Pau
Pauly Jail Building Co. 23m/Pa
Pawling Rubber Corp.
•*curtain wall sealants* 3f/Paw
•*rubber mats* 13i/Paw
Pecora, Inc.
•*ceramic tile adhesives* 13c/Pe
•*products for building* 3f/Pe
Peelle Co.
•*elevator doors* 24c/Pe
•*hangar doors* 16h/Pe
•*nuclear doors* 16m/Pee
•*pass windows, conveyor doors* 26d/Pe
–see also Richmond Fireproof Door Co. 16g/Ri
Peelle Co., Peelle Motorstair Div. 24a/Pee
Peerless Electric Co. 31e/Pe
Peerless Mfg. Div., Dover Corp.,–see Dura-Vent Corp. 31f/Du
Pellerin Milnor Corp. 27g/Pe
Penco Div., Alan Wood Steel Co. 23d/Pe
Penn Metal Co., Inc.
•*gratings* 13a/Pe
•*metal lath* 12a/Pe
•*movable partitions* 22a/Pe
•*structural sections* 2f/Pe
Penn Ventilator Co., Inc. 20c/Pe
Pennsylvania Wire Glass Co. 7a/Pe
Penokee Veneer Co.,
–see Splicedwood Corp. 5b/Sp; 16c/Sp
Perlite Institute
•*concrete aggregates* 12d/Pe
•*plaster aggregates* 12d/Pe
Perma-Top Co. 28a/Pe
Permaglas Div.,–see Smith, A. O., Corp., Permaglas Div. 30c/Sm
Perry-Briggs Co. 34a/Pe
Peterson Window Corp. 17a/Per
–see also Sapphire Div., Peterson Window Corp. 17a/Sa
Pfaff & Kendall 33c/Pf
Philipp Mfg. Co. 16b/Ph
Phillips Drill Co. 2i/Ph
Phoenix Building Products, Inc. 8g/Ph
Pinecrest, Inc. 19d/Pi
Pinnacle Products Co. Inc. 8a/Pi
Pinner, L. A., Steel Forms,–see Steel Forms, Inc. 2a/St
Pioneer Fireproof Door Corp.
•*fire doors* 16b/Pi
•*soundproof doors* 16m/Pi
Pioneer Plastics Corp. 14a/Pi
Pioneer Products Div.,–see Witco Chemical Co. Pioneer Products Div. 10d/Wi
Pi-Plank Div., Prestressing, Inc. 2d/Pi
Pistol, A. W., Inc. 33a/Pi
Pittsburgh Corning Corp.
•*building insulation* 10a/Pi
•*glass block curtain walls* 3e/Pi
•*glass blocks* 7b/Pi
Pittsburgh-Des Moines Steel Co. 23J/Pi
Pittsburgh Plate Glass Co.
•*door operators* 18e/Pi
•*glass-clad curtain wall systems* 3e/Pit
•*glass doors and frame assemblies* 16d/Pi
•*glass products* 7a/Pi
•*paint* 15/Pi
•*store fronts* 21/Pi
•*structural glass* 13e/Pi
•*tubular doors* 16a/Pi
Pittsburgh Steel Co.,–see Pittsburgh Steel Products, Div. Pittsburgh Steel Co. 2a/Pi; 12a/Pi
Pittsburgh Steel Products, Div. Pittsburgh Steel Co.
•*metal lath* 12a/Pi
•*permanent steel forms* 2a/Pi
•*reinforcing mesh* 2a/Pit
Plasteco, Inc. 20a/PLa
Plasteel Products Corp. 8b/PL
Plastic Products of Texas,–see Naturalite, Inc., Marketing Agency of Plastic Products of Texas. 20a/Na
Plibrico Co. 28a/PL
Plywall Products Co., Inc. 14b/PL
Plywood Co. 5b/PL
Poblocki & Sons Co. 23e/Po
Pomeroy, S. H., Co.
•*air conditioner, radiator enclosures* 31h/Po
•*aluminum windows* 17a/Po
•*steel windows* 17b/Po
–see also Unique Balance Div., S. H. Pomeroy Co. 18a/Un; 23e/Un

Pomona Tile 13c/Po
POrete Mfg. Co. 2d/Po
Porter Athletic Equipment Co., Div. Waco Mfg. Co. 23k/Por
Porter, H. K., Co., Inc.
–see Connors Steel Div., H. K. Porter Co., Inc. 2d/Cor
–see National Electric Div., H. K. Porter Co. 32b/Na
Porterfield Industries Inc. 17a/Por
Portland Cement Assn. 4i/Po
Potter Fire Escape Co. 6h/Po
Potts Ash Hoist Corp. 24d/Po
Powell Steel Lath Corp. 12a/Po
Powers Regulator Co. 27b/Po
Pratt & Lambert-Inc. 15/Pr
Precision Hardware, Inc. 18f/Pr
Precision Parts Corp.
•*electric boilers* 31g/Pr
•*electric stairway* 23n/Pr
Preco Chemical Corp., Building Products Div. 13h/Pr
Premier Panels, Inc. 3e/Pr
Premium Brand Insulation Group 10a/Pr
Prescolite Mfg. Corp. 33a/Pr
Prescon Corp. 2d/Pr
Presstite Div. American Marietta Co. 3f/Pre
Prestressing, Inc.,–see Pi-Plank Div., Prestressing, Inc. 2d/Pi
Preway, Inc. 25a/Pr
Price Brothers Co.,–see Flexicore Co., Inc. 2d/Fl
Pricemetal Corp. 22b/Pri
Products Research Co. 3f/Pro
Progressive Metal Equipment Co. 26d/Pr
Providence Granite Co., Inc. 4a/Pr
Pruden Products Co. 2e/Pr
Puffer Hubbard Refrigerator Co. 26a/Pu
Pyro Incinerator & Supply Co. 28a/Py

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R.C.A. Rubber Co. 13i/Ra
R. O. W. Sales Co. 17c/Ro
Rackle, George, & Sons Co. 2d/Ra
Radio Corp. of America 34a/Ra
Rambusch
•*design service* 23h/Ra
•*lighting fixtures* 33a/Ra
Ramset Fastening System, Winchester-Western Div., Olin Mathieson Chemical Corp. 2i/Ram
Ray Proof Corp. 22e/Ra
Raymond Concrete Pile Co., Div. Raymond International Inc. 1a/Ra
Raymond International Inc.,–see Raymond Concrete Pile Co., Div. Raymond International Inc. 1a/Ra
Raynor Mfg. Co. 16i/Ray
Rebco, Inc. 21/Re
Recreation Equipment Corp. 23k/Re
Rector Mineral Trading Corp. 10b/Re
Red Cedar Shingle Bureau
•*handsplit red cedar shakes* 8d/Red
•*red cedar shingles and shakes* 8d/Re
Redondo Tile Co.,–see Stylon Corp. 13c/Sty
Reflectal Corp., sub. Borg-Warner Corp.
•*reflective insulation* 10a/Re
•*sunscreen* 19e/Re
Reflecto-Barrier Sales Co., Inc. 8a/Re
Reilly Tar & Chemical Corp. 8a/Re
Reliance Steel Products Co. 13a/Re
Reliance Window Corp.
–see Williams & Williams Products Corp. 3a/Wi; 17b/Wi
Remington Rand, Div. Sperry Rand Corp.
•*library equipment* 23f/Re
•*office furniture* 23o/Re
Republic Industries, Inc.,–see Dor-O-Matic, Div. Republic Industries, Inc. 18e/Do; 18f/Dor
Republic Steel Corp.
•*pipe* 29a/Rep
•*sheet metal* 6c/Re
–see also Truscon Steel Div., Republic Steel Corp. 2f/Tr; 3d/Tr; 12a/Tr; 16b/Trs; 16h/Tr; 17a/Tru; 17b/Tr
–Berger Div.
•*gutters, leaders* 8g/Re
•*lockers* 23d/Re
–Steel & Tubes Div.
•*conduits* 32b/Re
•*structural steel tubing* 2f/Re
Resolite Corp. 7d/Re
Restoration Co., Inc.,–see Western Waterproofing Co., Inc. 9/Wet
Reuten, Fred, Inc. 17c/Re
Reuter, M., & Sons 16b/Re
Revco Inc. 25a/Rev
Revere Copper & Brass Inc.
•*aluminum shapes* 6a/Ra
•*gravel stops* 8g/Rea
•*pipe and tube* 29a/Rev
•*roofing and flashing* 8b/Re
Reynolds Metals Co.
•*acoustical systems* 11a/Re
•*aluminum curtain walls* 3a/Rey
•*aluminum rigid conduit* 32b/Rey
•*aluminum wall systems* 3a/Rez
•*aluminum windows* 17a/Rey
•*architectural shapes* 6a/Re
•*commercial roof deck* 8b/Ree
•*copings, gravel stops* 8g/Rez
•*corrugated roofing and siding* 8b/Rey
•*insulated curtain wall systems* 3a/Re
•*ribbed siding* 8b/Reo
•*V-beam roofing and siding* 8b/Ren
Rez Wood-Tones, Inc. 15/Re
Reznor Mfg. Co. 31c/Rez
Rheem Mfg. Co.,–see Richmond Plumbing Fixtures Div., Rheem Mfg. Co. 27a/Ri
Rice, Chas. W., & Co., Inc. 19c/Ri
Richards, J. Merrill 7a/Ri

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Richards-Wilcox Mfg. Co.
•*folding partitions* 22d/Ri
•*hardware and doors* 16h/Ri
–School Equipment Div. 23d/Ri
Richmond Fireproof Door Co.
•*doors* 16b/Ri
•*pass windows* 16g/Ri
Richmond Plumbing Fixtures Div., Rheem Mfg. Co. .. 27a/Ri
Richmond Screw Anchor Co., Inc. 2i/Ri
Ridge Door Co. 16i/Rid
Riesner Vent Brick Corp. 20d/Ri
Rigid Metal Products Inc. 21/Ri
Rigidized Metals Corp. 6c/Ri
Rilco Laminated Products, Inc. 2e/Ri
Rising & Nelson Slate Co., Inc. 8e/Ri
Rixson, Oscar C., Co. 18e/Ri
Roanoke Iron & Bridge Works, Inc. 23m/Ro
Robart Partitions, Inc. 22b/Ro
Robberson Steel Co. 35/Ro
Robbins & Myers, Inc.
–see Hunter Div., Robbins & Myers, Inc. 31h/Hu
–see Trade Wind Div., Robbins & Myers, Inc. 31e/Tr
Robbins Floor Products, Inc. 13i/Ro
Robbins Flooring Co.
•*gymnasium floors* 13J/Rob
•*hardwood floors* 13J/Ro
Robertson, H. H., Co.
•*curtain walls, panels* 3c/Ro
•*Q-Deck, Q-Floor* 2b/Ro
Robertson Mfg. Co., Tile Div. 13c/Ro
Robinson, J. G., Inc. 4c/Ro
Rochester Germicide Co. 27e/Ro
Rockwell-Standard Corp., Grating Div. 13a/Ro
Roddis Plywood Corp.
•*doors* 16c/Ro
•*plywoods* 5b/Ro
–see also Owens-Illinois Plywood Co. 16c/Ow; 22a/Ow
Rodney Metals, Inc.,–see Modern Venetian Blinds, Div. Rodney Metals, Inc. 19d/Mo
Rogers Insulating & Roofing Co., Inc.,–see Aaer-Sprayed Insulations Inc., Div. Rogers Insulating & Roofing Co., Inc. 10a/Aa
Rohm & Haas Co. 7d/Roh
Rol-Fol-Table Inc. 23i/Ro
Rollform Inc. 11a/Ro
Rolscreen Co.
•*folding doors* 16e/Ro
•*windows* 17c/Rol
Roman Metal Products, Inc. 16d/Ro
Ross Heat Exchanger Div.,–see American-Standard Industrial Div. 31a/Ame
Rossbach & Sons, Inc. 17a/Ro
Rotary Lift Co., Div. Dover Corp.
•*freight and passenger elevators* 24a/Ro
•*rising stages* 23g/Ro
Rowe Mfg. Co. 16i/Ro
Royal Metal Mfg. Co.,–see Deluxe Metal Products Co., Div. Royal Metal Mfg. Co. 23f/De
Royal Tile Mfg. Co. 13c/Roy
Rubatex Div., Great American Industries, Inc.
•*building insulation* 10b/Ru
•*closure strips* 8b/Ru
Rubber & Plastics Compound Co., Inc. 8g/Ru
Ruberoid Co.
•*asbestos and asphalt shingles* 8c/Ru
•*built-up roofing* 8a/Ru
Rudel Floor Strip Co., Inc. 13g/Ru
Russell, Burdsall & Ward Bolt & Nut Co. 2h/Ru
Russell, F. C., Co. 17a/Ru
Rust-Oleum Corp. 15/Ru
Ruud Mfg. Co. 30c/Ru
Ryerson, Jos. T., & Son, Inc. 2d/Ry
Rysdon Products Co.,–see Firebar Door Div. Rysdon Products Co. 16m/Fi
Ryther-Purdy Lumber Co., Inc. 33c/Ry

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Safway Steel Products, Inc. 23J/Sa
Saino, F. L., Mfg. Co. 16b/Sa
St. Charles Mfg. Co.
•*hospital casework* 23L/Sa
•*kitchen cabinets* 25b/Sa
•*school storage furniture* 23i/Sa
St. Louis Fire Door Co. 16h/Sa
St. Paul & Tacoma Lumber Co. 2i/Sai
St. Regis Paper Co.,–see Panelyte Div., St. Regis Paper Co. 14a/Pa
Samson Window Corp. 3a/Sa
Sandell Mfg. Co., Inc. 8g/Sa
Sandura Co. 13i/Sa
Sanymetal Products Co., Inc. 22b/Sa
Sapphire Div., Peterson Window Corp. 17a/Sa
Sargent Building Specialties Inc., Equal-Aire Incinerator Div. 28a/Sar
Sargent & Co. 18e/Sa
Sargent & Greenleaf, Inc. 18f/Sa
Saxe Welded Connections 2h/Sa
Sayre & Fisher Co., Brick Div. 4f/Sa
Schacht Associates, Inc. 16d/Sc
Schenectady Concrete Products Co., Inc. 2d/Sc
Schieber Sales Co. 23i/Sc
Schlage Lock Co. 18e/Sc
Schlegel Mfg. Co.
•*door weatherstripping* 16a/Sc
•*window weatherstripping* 17a/Sc
Schless, Robert A., & Co., Inc. 23c/Sc
School Equipment Mfg. Corp.,–see Grade-Aid Corp., sub. Maine Mfg. Co. 23i/Gr
School Supply Co. 23d/Sc
Schulmerich Carillons Inc. 23h/Sc
Schundler, F. E., & Co., Inc. 10a/Sc
Schwab Jalousie & Awning Co., Inc. 17d/Sc
Schwerd, A. F., Mfg. Co. 5c/Sc
Scott Paper Co. 27e/Sc
Seamloc Carpet Co. 13L/Se
Seaporcel Metals, Inc. 3c/Se

Seco Mfg., Inc. 30f/Se
Security Fire Door Co.
•doors 16h/Se
•elevator doors 24c/Se
Security Metal Products Corp. 16b/Se
Security Products Co. 17a/Se
Sedgwick Machine Works 24a/Se
Selby, Battersby & Co. 13i/Se
Select-O-Phone Div.,
–see Kellogg Switchboard & Supply Co. 34a/Ke
Self Storing Window Co., Inc.,
–see DeVAC, Inc. 17a/Dev
Sellers Engineering Co. 30c/Se
Servicised Products Corp. 2i/Se
Shampaine Co. 23L/Sh
Shaw-Walker 23b/Sh
Sheffield Div., Armco Steel Corp. 2f/Sh
Shell Chemical Corp., Agricultural Chemical Sales Div. 5d/Sh
Shepard Elevator Co., Div. Dover Corp. 24a/Sh
Sherron Metallic Corp. 34a/Sh
Sherwin-Williams Co. 15/Sh
Shlagro Steel Products Corp. 2f/ShL
Siegler Corp.,–see Bogen-Presto Co., Div. Siegler Corp. 34a/Bo
Siems Bros., Inc.,
–see Trussbilt Div. Siems Bros. Inc. 16b/Tru
Sika Chemical Corp. 9/Si
Simes Co., Inc. 33a/Sim
Simix Co. 27b/Si
Simmons Co. 23i/Sim
Simplex Ceiling Corp.
•acoustical ceiling systems 11a/Si
•radiant heating panels 31b/Si
Simplex Time Recorder Co. 34b/Si
Simpson Co. 2i/Si
Simpson Logging Co.
•acoustical materials 11a/Sim
•flush doors 16c/Si
•plywood products 5b/Si
Sinko Mfg. & Tool Co. 33a/Sin
Sloan Valve Co. 27b/SL
Smith, A. O., Corp., Permaglas Div. 30c/Sm
Smith, Elwin G., & Co., Inc.
•corrugated sheets 8b/Sm
•curtain walls 3a/Sm
•forms for concrete 2a/Sm
•insulated curtain walls and roofs 8b/Smi
•roof decking 2c/Sm
Smith & Kanzler Corp.
•fireproofing 16e/Sm
•insulation 10a/Sm
Smithcraft Lighting 33a/Sm
Smyser-Royer Co.,–see J. W. Fiske Architectural Metals, Inc. 6e/Fi
Solux Corp. 33a/So
Son-Nel Products Co.
•chalkboards 23e/So
•folding tables and benches 23i/So
Sonneborn, L., Sons, Inc. 9/So
Sonoco Construction Products, Sonoco Products Co.
•concrete column forms 2i/Son
•fibre ducts 31f/Son
•hollow concrete deck forms 2d/Son
Sonoco Products Co.,–see Sonoco Construction Products, Sonoco Products Co. ..2d/Son; 2i/Son; 31f/Son
Soss Mfg. Co. 18e/So
Soulé Steel Co.
•aluminum and steel curtain walls 3a/So
•aluminum windows 17a/So
Southern Coatings and Chemical Co. 15/So
Southern Equipment Co. 26d/So
Southern Sash Sales & Supply Co., Inc.
•aluminum curtain walls 3a/Sou
•aluminum windows 17a/Sou
Southern Steel Co. 23m/So
Southern Wood Preserving Co. 13J/Sou
Southwell Co. 6f/So
Spang Underfloor Duct Dept., National Supply Co. 32b/Sp
Spanjer Bros., Inc. 6f/Sp
Sparta Ceramic Co.–see United States Ceramic Tile Co. 13c/Un
Speakman Co. 27b/Sp
Spencer Industries, Inc.
•bulletin boards 23a/Sp
•metal letters 6f/Spe
Sperry Rand Corp.,–see Remington Rand, Div. Sperry Rand Corp. 23f/Re; 23o/Re
Splendor Corp. 16e/Sp
Splicedwood Corp.
•doors 16c/Sp
•plywood 5b/Sp
Sprayon Insulation & Acoustics, Inc. 11a/Sp
Springwood Floor System 13J/Sp
Spronz Incinerator Corp. 28a/Sp
Standard Coated Products, Inc. 13k/St
Standard Conveyor Co. 24d/St
Standard Dry Wall Products, Inc. 9/St
Standard Fire Hose Co. 30f/St
Standard Plywoods, Inc.,–see Modernwood Co., Div. Standard Plywoods, Inc. 13J/Mo
Standard Pressed Steel Co. 23i/St
Standard Products Co. 3f/St
–see also Clark Div., Standard Products Co. 17b/Cla
Standard Tile Co., Inc. 13c/San
Standard-Toch Chemicals Inc.,
–see Toch Brothers, Div. Standard-Toch Chemicals, Inc. 9/To
Stanley Electric Mfg. Co. 33a/St
Stanley Hardware, Div. Stanley Works 18e/Sta
Stanley Works,–see Stanley Hardware, Div. Stanley Works 18e/Sta
Stark Ceramics, Inc. 4f/St
Steel City Electric Co. 32b/St
Steel Door Corp.,–see Berry Door Corp. 16i/Be
Steel Forms, Inc. 2a/St
Steel Joist Institute 2f/St

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Steel Partitions Inc. 22a/St
Steel Window Institute 17b/St
Steelcraft Mfg. Co. 16b/Ste
Steele, Oliver C., Mfg. Co. 19c/St
Steiner Co. 27e/St
Sterling, John, Corp. 18d/Ste
Stero Dishwashing Machine Mfg. Co. 26b/St
Stevens & Thompson Paper Co., Inc. 27e/Ste
Stewart Iron Works Co., Inc. 23m/St
Stic-Klip Mfg. Co., Inc. 16k/St
Stiles-Karlsonite Corp. 30b/St
Stillwater Clay Products Co. 29a/Sti
Stonco Electric Products Co. 33a/Sto
Storagewall 23i/Sto
Straits Products, Inc. 16e/St
Stran-Steel Corp., Div. National Steel Corp. 2f/Str
Stromberg-Carlson Co. 34a/Str
Structural Clay Products Institute,
–see Facing Tile Institute 4f/Fa
Structural Products, Inc. 23c/St
Structural Slate Co. 4c/St
Structoglas Div.,–see International Molded Plastics,
Inc., Structoglas Div. 7d/In
Structural Clay Products Institute,–see Architectural
Terra Cotta Institute 4e/Ar
Struthers Wells Corp.,–see Titusville Iron Works Co.,
Div. Struthers Wells Corp. 31g/Ti
Studebaker-Packard Corp.–see Gering Plastics Div.,
Studebaker-Packard Corp. 9/Ger
Sturtevant Div.,–see Westinghouse Electric Corp.,
Sturtevant Div. 31a/We
Stylon Corp. 13c/Sty
Sulzer Bros. Ltd. 16L/Su
Summitville Tiles, Inc. 13c/Sum
Sun Chemical Corp.,–see A. C. Horn Cos., Subs. &
Divs. Sun Chemical Corp. 9/Ho
Sun-Tron Corp. 31h/Su
Sun Valley Industries, Inc. 16d/Su
Sun Vertikal Blind Co. 19d/Su
Sunbeam Lighting Co. 33a/Sun
Sunlight Metal Products Co.
•*aluminum windows* 17a/Su
•*curtain walls* 3a/Su
Sunroc Corp. 30d/Su
–see also Moore, P. O., Inc., sub. Sunroc Corp. .. 18e/Moo
Super Sky Products Co., Div. Super Steel
Products Co. 20b/Su
Super Steel Products Co.,–see Super Sky Products
Co., Div. Super Steel Products Co. 20b/Su
Superior Concrete Accessories, Inc. 2i/Su
Superior Fireplace Co. 31L/Su
Superior Fireproof Door & Sash Co., Inc. 16b/Sup
Superior Rubber Mfg. Co. 13i/Su
Superior Window Co.
•*aluminum awning windows* 17a/Sup
•*aluminum windows* 17a/Sur
Superior Wire & Iron Products, Inc. 22f/Su
Superior Woodwork Co. 16c/Su
Supersine Co. 6f/Su
Surface Combustion Corp.,–see Janitrol Heating &
Air Conditioning Div., Surface Combustion
Corp. 31b/Ja
Surface Engineering Co., Inc. 15/Su
Sussman, J. 17a/Sus
Suttle Equipment Corp. 34a/Su
Swartzbaugh Mfg. Co. 26d/Sw
Swedish Crucible Steel Co., Plastics Div. 27a/Sw
Sylvania Electric Products, Inc. 33a/Sy
Symmons Engineering Co. 27b/Sy
Symons Clamp & Mfg. Co. 2i/Sy

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T & S Brass & Bronze Works Inc. 27b/Ta
Tablet & Ticket Co.
•*building directories* 23a/Ta
•*changeable letter signs and letters* 23a/Tab
Taylor, Halsey W., Co. 30d/Ta
Taylor Clay Products, Inc.,–see Isenhour Brick & Tile
Co. 4f/Is
Teco-Tested Plywood 5b/Te
Tectum Corp.
•*acoustical ceilings* 11a/Te
•*form plank* 2a/Te
•*roof planks* 2d/Te
Teleflex Inc. 18b/Te
Tempo Valve Co. 27b/Te
Temprite Products Corp. 30d/Te
Tennessee Stone Co., Inc. 4c/Ten
Textron Metals Co. 17a/Te
Thermo-Base Div.–see Gerwin Industries, Inc. 31f/Ge
Ther-Mo Roof, Inc. 8a/Th
Thiokol Chemical Corp. 7e/Th
Thomas Industries, Inc.
–see Moe Light Div., Thomas Industries, Inc. 33a/Mo
Thompson, E. A., Co., Inc. 9/Th
Thru-Vu Vertical Blind Corp. 19d/Th
Thrush, H. A., & Co. 31i/Th
Tiger Brands Inc., Div. Basic Inc. 11a/Tig
Tile Contractors' Assn. of America 13c/Ti
Tile Council of America, Inc. 13c/TiL
Tile-Tex Div.,–see Flintkote Co., Flooring &
Adhesive Div. 13i/FL
Timber Structures, Inc. 2e/Tim
Titus Mfg. Corp.
•*air conditioning outlets* 31f/Ti
•*grilles and louvers* 31f/Tit
Titusville Iron Works Co., Div. Struthers Wells
Corp. 31g/Ti
Tnemec Co., Inc. 15/Tn
Toastmaster Div., McGraw-Edison Co. 26c/To
Toch Brothers, Div. Standard-Toch Chemicals, Inc. .. 9/To
Toledo Desk & Fixture Co. 25b/To
Toledo Scale Corp. 26b/To
Torjesen, Inc. 22d/To
–see also Bar-Ray Products, Inc. 22e/Ba
–see also Capitol Cubicle Co., Inc. 22c/Ca
Townsend Co., Engineered Fasteners Div. 8b/To

Trade-Wind Div., Robbins & Myers, Inc. 31e/Tr
TransWall Coated Products, Div. Waco Mfg. Co..16e/Tr
Treadway Corp. 18e/Tr
Tremco Mfg. Co.
•*flooring products* 9/Tr
•*sealants for curtain walls* 3f/Tr
Tretol Inc. 9/Tre
Triangle Millwork & Supply Corp. 22a/Tr
Trinity White Dept.,–see General Portland Cement Co., Trinity White Dept. 4i/Ge
Trio Industries Inc. 17a/Tr
Tropicraft of San Francisco 19d/Tro
Troy Laundry Machinery Div., American Machine & Metals, Inc. 27g/Tr
Truscon Laboratories, Div. Devoe & Raynolds Co., Inc. 9/Tru
Truscon Steel Div., Republic Steel Corp.
•*aluminum windows* 17a/Tru
•*industrial doors* 16h/Tr
•*interior doors* 16b/Trs
•*metal lath* 12a/Tr
•*steel windows* 17b/Tr
•*structural products* 2f/Tr
•*window walls* 3d/Tr
Trussbilt Div., Siems Bros., Inc.....16b/Tru
Tubular Products, Inc. 2g/Tu
Twenty Mule Team Products Div., United States Borax & Chemical Corp.....27e/Ty
Tyler Refrigeration Corp. 26a/Ty

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Uni-Crest Div., United Cork Cos. 10a/Un
Union Asbestos & Rubber Co.,–see Espro Tubing, Div. Union Asbestos & Rubber Co.....2f/Es
Union Carbide Corp.,–see Visking Co., Div. Union Carbide Corp.....9/Vi
Union Metal Mfg. Co.
•*lighting standards* 33c/Un
•*piling* 1b/Un
Unique Balance Div., S. H. Pomeroy Co.
•*chalkboards* 23e/Un
•*sash balances* 18a/Un
Unique Window Balance Corp.,–see Unique Balance Div., S. H. Pomeroy Co. 18a/Un
Unistrut Products Co. 22a/Ui
Unit Structures, Inc. 2e/Un
United Cork Cos.,–see Uni-Crest Div., United Cork Cos. 10a/Un
United States Borax & Chemical Corp.,–see Twenty Mule Team Products Div., United States Borax & Chemical Corp. 27e/Ty
United States Bronze Sign Co., Inc. 6f/Un
United States Ceramic Tile Co. 13c/Un
–see also Ceramic Tile Panels, Inc., Sub. United States Ceramic Tile Co. 3e/Ce
United States Flagpole & Equipment Co., Inc.....6g/Un
U.S. Flexible Metallic Tubing Co.,–see Keflex Mfg. Div., U.S. Flexible Metallic Tubing Co. 29a/Ke
United States Gypsum
•*acoustical plasters* 11a/Uni
•*expanded metal* 6e/Un
•*expanded metal grating* 13a/Un
•*gypsum lath, metal lath*.....12a/Un
•*gypsum partition tile* 12c/Un
•*gypsum plasters and finishing limes*.....12e/Un
•*gypsum roof deck* 2d/Un
•*gypsum wallboard* 12c/Uni
•*insulations* 10a/Uni
•*masonry lime* 4i/Un
•*metal edge gypsum roof plank*.....2d/Uni
•*movable partitions* 22a/Un
•*paints* 15/Un
•*sound control products* 11a/Un
•*steel roof deck* 2c/Uni
United States Incinerator Corp.....28a/Un
U.S. Louver Corp. 20d/Un
United States Mineral Wool Co.,
–see Columbia Acoustics & Fireproofing Co., Sub. United States Mineral Wool Co. 11a/Co; 12e/Co
United States Plywood Corp.
•*chalkboards* 23e/Uni
•*fillers, stains* 15/Uni
•*partitions* 22a/Uni
•*plastic wall coverings* 13k/Un
•*plywood* 5b/Un
•*wood doors* 16c/Un
•*wood paneling* 13k/Uni
United States Register Co. .....31f Un
United States Rubber Co.....13L/Un
–see also Naugatuck Chemical Div., US Rubber Co. 14b/Na
United States Steel
–see American Bridge Div., United States Steel Corp. 2f/Am
–see Cyclone Fence Dept., American Steel & Wire Div., United States Steel 22g/Cy
–see Universal Atlas Cement, Div. United States Steel 4i/Uni; 4i/Unv; 13g/Un
United Steel Fabricators, Inc. 16b/Un
Universal Atlas Cement, Div. United States Steel
•*masonry cement* 4i/Uni
•*portland cements* 4i/Unv
•*terrazzo* 13g/Un
Universal Bleacher Co. 23J/Un
Universal Chemical Corp. 13h/Un
Universal Diffuser Corp. 31f/Uni
University Loudspeakers, Inc. 34a/Un
Upco Co.
•*clay tile mortar, grout, sealer* 13c/Upc
•*joint fillers, ceramic tile grout* 13c/Up
•*masonry treatments* 9/Up
Uvalde Rock Asphalt Co.,–see Azrock Floor Products Div., Uvalde Rock Asphalt Co.....13i/Az

V

Vacu-Master Corp. of America 28b/Va
Vacumite, Inc. 23k/Va

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Valley Metal Products Co., Sub. Mueller Brass Co.
•*aluminum doors* 16a/Va
•*curtain walls* 3a/Va
•*windows* 17a/Va
Van Dorn Iron Works Co. 23m/Va
Van Noorden, E., Co.
•*aluminum and steel skylights* 20b/Va
•*plastic dome skylights* 20a/Van
•*plastic skylights* 20a/Va
•*ventilators* 20c/Va
•*wall louvers, louver penthouses, sun shades* 20d/Va
Van-Packer Co., Div. Flintkote Co. 31k/Va
Van Range, John, Co. 26d/Va
Variety Fire Door Co., Inc. 16b/Va
Vasconcellos, Joseph, Inc. 23g/Va
Ventilouvre Co., Inc. 20d/Ve
Vento Steel Products Co., Inc.
•*aluminum windows* 17a/Ven
•*steel windows* 17b/Ven
Vermont Marble Co.
•*curtain walls* 3e/Ve
•*exterior marble* 4b/Ve
•*interior marble* 13f/Ver
•*wall tile* 13f/Ve
Vermont Structural Slate Co., Inc. 4c/Ve
Versen, Kurt, Co. 33a/Ve
Vertical Blinds Corp. of America 19d/Ve
Victor Oolitic Stone Co. 4c/Vi
Victor Steel Products Corp. 2f/Vi
Victory Metal Mfg. Corp. 26a/Vi
Viking Corp. 30e/Vi
Viking Superior Corp. 30c/Vi
Vinyl Plastics, Inc. 13i/Vi
Virden, John C., Co. 33a/Vir
Virginia Metal Products, Inc. 22a/Vi
Visking Co., Div. Union Carbide Corp. 9/Vi
Visumatic Corp. 18e/Vi
Vogel-Peterson Co. 23d/Vo
Von Duprin Div.,–see Vonnegut Hardware Co., Von Duprin Div. 18f/Vo
Vonnegut Hardware Co., Von Duprin Div. 18f/Vo
Voorhis-Tiebout Co., Inc. 27e/Vo
Vulcan Radiator Co. 31h/Vu

W

Waco Mfg. Co.,
–see Porter Athletic Equipment Co., Div. Waco Mfg. Co. 23k/Por
–see TransWall Coated Products, Div. Waco Mfg. Co. 16e/Tr
Walcon Corp. 3a/Wa
Walker Cement Products Co.,
–see Walker Poroswall Pipe Co. 29a/Wa
Walker Poroswall Pipe Co. 29a/Wa
Walsh-Hannon-Gladwin, Inc. 16J/Wa
Walsh, L. M., Co.,–see Walsh-Hannon-Gladwin, Inc. 16J/Wa
Wampum Products Inc.,–see Lastik Products Div., Wampum Products Inc. 2d/La
Ware Laboratories, Inc.
•*aluminum windows* 17a/War
•*curtain walls* 3a/War
Wasco Products, Inc.
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cant or closure strips for
cement and coatings for
combination (sheathing-insulation-covering)
copper, copper alloy, or copper foil
corrugated
corrugated—filler strips for
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ALUMAFLEX (weatherstripping) 17c/Si
ALUMALUN (aluminum treads) 13b/Am
ALUMAR (aluminum windows, sliding doors) 17a/Fo
ALUMCO (flashing) 9/Mu
ALUMI-COUSTIC (suspension systems).11b/Cu
ALUMIFOAM (insulation, vapor barriers) 10b/ALw; 10b/ALu
ALUMILASTIC (elastic metallic compounds) 3f/Pa
ALUMILINE (entrances) 16a/ALu
ALUMILITE (aluminum sheet, finish) ..3a/ALu
ALUMILITE (aluminum sheet, finish) ..6a/ALu
ALUMINAIRES (lighting fixtures) 33a/Mc
ALUMINITE (metal finish) 6f/Co
ALUMINIZED STEEL (steel building panels) 2J/Ar
ALUMINUM-CHAMP (aluminum flashings) 8h/Lu
ALUMINUS OXIDE (non-slip aggregates) 9/La
ALUMISATIN (aluminum finish) 10b/AL; 10b/ALi; 10b/ALw
ALUMISEAL (reflective insulation) 10b/AL; 10b/ALi; 10b/ALw
ALUMOGRIT (thresholds, treads)....13b/Wo
ALUNDUM (abrasive aggregate) 13g/No
ALWIN-TILT (tilt-type window sash) 17a/ALw
ALWINTITE (aluminum windows) ...17a/ALw
ALWINTITE (sliding glass doors) 16d/AL
ALWINTITE (windows) 17a/Ge
ALZAC (aluminum reflector) 33a/Mo
ALZAK (lighting fixtures) 33a/Ce
AMARLITE (aluminum entrances) 16a/Am
AMARLITE (aluminum store fronts) ...21/Am
AMBALLOY (steel) 29a/By
AMBASSADOR (cigarette dispensers)..26a/Au
AMBASSADOR (electric door operators) 16g/La
AMBASSADOR (food warming cabinets) 26d/Foo
AMBLER (sidewall tile) 8c/Ke
AMBOY (service sinks) 27a/Ri
AMBRIDGE (service sinks) 27a/Ri
AMBRIDGE (steel joists) 2f/Am
AMERAY (x-ray protective materials)..22e/Am
AMERICA (locksets) 18e/Co
AMERICAN (aluminum windows and doors) 17a/Ame
AMERICAN (louvers, metal doors)...16b/Am
AMERICAN (vermiculite) 12d/Am
AMERICAN (wood doors) 16c/Cu
AMERICAN COLONIAL (shingles) 8c/Jo
AMERICAN-STANDARD (air conditioning equipment) 31a/Amr
AMERICAN-STANDARD (heating and air conditioning equipment) 31a/Ame
AMERICAN THATCH (asbestos-cement shingles) 8c/Ru
AMERICAN WAY (fan shutters, dampers, louvers) 20d/Ame
AMES (steel library equipment) 23f/Am
AMTI-SEPTIC (germicide) 13i/Am
AMTICO (rubber, plastic flooring)...13i/Am
AMURSEAL (asphaltic paint) 9/An
AMVENT (ventilators) 20c/We
AMVERCO (vermiculite) 12d/Am
AMWELD (steel doors) 16b/Amw
ANACONDA (architectural metals) ...6b/Am
ANACONDA (bronze curtain walls)...3e/Am
ANACONDA (copper sheets) 8b/Am
ANACONDA (pipe, tube) 29a/Am
ANCHOR (roofing coatings) 8a/Ba
ANCHOR-WELD (fencing) 22g/An
ANCHORBOND (roofing) 8a/Ba
ANCHORFAST (nails) 18a/In
ANCOR (wood framing accessories)...2e/Ma
ANDCO (metal, plastic letters) 6f/An
ANDERSEN (wood windows) 17c/An
ANEMOSTAT (air diffusers) 31f/An
ANEMOTHERM (air meter) 31f/An
ANKER-IN (bathroom accessories) 27d/Ke
ANKOR-FIL (paints) 15/Ma
ANKOR-KOTE (paints) 15/Ma
ANNULITE (recessed lights) 33a/Ra
ANOCLAD (aluminum sheets, extrusions) 3a/ALu; 6a/ALu
ANOTEC (anodized aluminum grating) 6e/KL; 13a/KL
ANTICIDOL (hardeners) 9/Up
ANTI-HYDRO (hardeners, densifiers) ...9/An
ANYSTREAM (shower fixtures) 27b/Sp
AP (dome skylights) 20a/Ar
APAC (asbestos sheets) 8c/Ke
APCO (pumps) 30a/Au
APCO-MATIC (condensate pumps) ...30a/Au
APEX (corkboards) 23e/Ne
AQUA-CHROME (lavatories) 27a/Ca
AQUA REPEL (waterproof coating) 9/Le
AQUACIDE (water repellent coating)..15/So
AQUACONE (transparent masonry coating) 9/Aq
AQUACOOLERS (cooling towers)....30b/Ma
AQUADAM (built-up roofing) 8a/Jo
AQUAKLEER (swimming pool filters)...23k/In
AQUARIUS (drinking fountains) 27a/Bri
AQUASIL (water repellent) 9/Ce
AQUATEX (caulking compound) 9/Aq
AQUATILT (parting compound) 9/Aq
AQUATITE (densifier, hardener) 9/Aq
AQUATOWER (cooling towers) 30b/Ma
ARCADIA (sliding glass doors) 16d/Ar
ARCADIA-WALL (aluminum window wall system) 3d/Ar
ARCH BEAD (corner beads) 12a/In
ARCHITECT (asphalt shingles) 8c/Bi
ARCHITECTURAL (letter boxes) 23b/Cu
ARDMORE (toilet compartments) 22b/Ac
AREA-LITER (lighting fixtures) 33a/Cu
AREX (roof ventilators) 20c/Ar
AREX-AUSTOR (roof ventilators) 20c/Ar
ARGOSY (residential doors) 16i/At
ARGUS (glass blocks) 3e/Pi; 7b/Pi
ARID-MIX (masonry treatments) 9/Am
ARIDCLEAR (masonry treatments) 9/An
ARIDSIL (masonry treatment) 9/An
ARIDTITE (plaster bond) 9/An
ARIDTONE (masonry treatment) 9/An
ARIN (wall louvers) 20c/Ar
ARISTO (toilet partitions) 22b/Fi
ARISTOCRAFT (institutional doors) ..16c/Has
ARISTOCRAT (glazed concrete masonry units) 4g/Ari
ARISTOCRAT (key wall cabinets) ...18e/Moo
ARISTOCRAT (office furniture) 23o/Re
ARISTOCRAT (refrigerator-range combination) 25b/Ac
ARISTOCROME (bathroom accessories) 27d/Ha
ARISTOFLEX (asphalt floor tile) 13i/Ma
ARISTON (hand rail brackets, metal railing) 6e/Mi
ARKELITE (ceramic tile) 4f/Ark
ARKETEX (ceramic tile) 4f/Ark
ARKLA (gas lights) 31a/Ar
ARKLA-SERVEL (air conditioners, water chillers) 31a/Ar
ARM-R-LITE (aluminum overhead doors) 16i/Ar
ARMAFLEX (pipe insulation) 10b/Ar
ARMALITE (aluminum curtain walls)...3a/Am
ARMALITE (board insulation) 10b/Ar
ARMCO (foundation pipe) 1b/Ar
ARMCO (steel, stainless steel, steel products) 6c/Ar
ARMCO (steel joists) 2f/Sh
ARMCO (steel buildings) 2J/Ar
ARMGLAZE (glazing compound) 7c/Di
ARMOLAC (coatings) 9/So
ARMOR (chalkboards) 23e/Ne
ARMOR-CRETE (resurfacer) 13h/Pr
ARMOR-TILE (landing tile) 13i/Ama
ARMOR-TREDS (treads) 13i/Ama
ARMORGRID (armoring grids) 31f/He
ARMORPLY (metal bonded plywood) ..5b/Un
ARMORTOP (hardeners, densifiers) ....9 An
ARMORWEAVE (expanded metal) 6e/Un
ARNCO (coat, hat racks, wardrobes).23d/Ne
ARNCO (curtain cubicles) 22c/Ne
ARRESTONE (acoustical materials) ...11a/Ar
ARROWHEAD (wallboard) 11a/Wor
ART-ROC (aggregates) 9/Tru
ARTEX (windows) 17a/Art
ARTHUR (locks) 18e/Sa
ARTISAN (wing or arch bead) 12a/Pe
ARTWALL (paint) 15/Ame
ARVINYL (vinyl-metal laminated panels) 14a/Ar
ASBESTILE (flashing system) 8a/Jo
ASBESTOCITE (chalkboards) 23e/CL
ASBESTONE (corrugated asbestos—cement roofing, siding) 8c/Na
ASBESTONE (panels, roofing, siding)..8b/Na
ASBESTOSPRAY (sprayed-on fireproofing, acoustical materials) 11a/As
ASIDBAR (treated lumber) 5d/Ko

ASPHALTUM (paint) 15/Na
ASTRA (carpets and rugs) 13L/Du
ASTRA (locks) 18e/Sc
ASTRA TWEED (carpets and rugs) ..13L/Du
ASTRA-DOME (phone booth domes)...34a/Sh
ASTRANLITE (lighting fixtures) 33a/Cu
ASTRALOUVRE (lighting fixtures) 33a/Cu
ASYLUM (detention door hinges) 18e/Do
ATLAS (builder's adhesives) 9/FL
ATLAS (extractors) 27g/Tr
ATLAS (mortar cement) 4i/Uni
ATLAS WHITE (white portland cement) 4i/Unv
AUDICOTE (acoustical plaster) 11a/Uni
AUDIO-VISUAL (paging systems) 34a/Ex
AUDICOTE (acoustical plaster) 12e/Un
AUDITONE (acoustical tile) 11a/Un
AURA-LITES (lighting fixtures).....33a/Ce
AURORA (pumps) 30a/Au
AUT-O-DOR (door operators) 16h/Ri
AUTO-CLOSE (freezer doors) 23c/Ja
AUTO-CLOSE (swinging doors) 23c/Bu
AUTO-DIAL (intercommunicating systems) .....,34a/Ra
AUTO-PLY (refrigerator doors) 23c/But
AUTO-PLY (vestibule door) 23c/Bu
AUTO-SEAL (acoustic doors) 11a/Fir
AUTO-SEAL (threshold closers) 16m/Fi
AUTO SIGNAMATIC (elevator control system) 24a/Ha
AUTO-VENT (aluminum windows) ...17a/Me
AUTO-VENT (steel windows) 17b/Me
AUTOCALL (fire alarm systems) 34a/Au
AUTOCALL-HOWE (plant protection & supervisory systems) 34a/Au
AUTODRAPE (curtain machinery) 23g/Au
AUTOFLO (water flow control).....27b/Sp
AUTOLENE (concrete additives, sealers).9/Au
AUTOTRONIC (elevators) 24a/Ot
AUTO-VENT (steel windows) 17b/Me
AVC (vermaculite) 12d/Am
AVON (lavatories) 27a/Ca
AVONCRAFT (porcelain enamel) 2J/Av
AXIVANE (blowers) 31e/Jo
AYR-TRAP (admixtures) 9/Ho
AZPHLEX (plastic tile) 13i/Az
AZROCK (asphalt tile) 13i/Az

b

B&G (aluminum awning windows)....17a/Br
B&G (aluminum window walls) 3a/Br
B&G (heating systems) 31i/Be
BC-100 (ceramic tile adhesives).....13i/Cr
BCI (Bituminous Coal Institute) 31J/Bi
B-D (flagpoles) 6g/Bab
B-D (hatchways) 16J/Ba
B-E-H (insulation) 10c/BaL
B-H (spun-blanket insulation) 10a/Ba
BM (sun control devices) 19e/Ba
BMH (pipe connectors) 29a/Ke
B-W (building insulation) 10a/Re
BW (parquet flooring).....13J/Har
B-W (screens) 19e/Re
BALCOPLY (plywood doors) 16c/Ja
BALSAM-WOOL (blanket insulation)..10a/Wo
BANC-LOK (nuts) 16b/Amw
BANDLITE (glass) 7a/Mi
BANGOR CERTIFICATE SLATE (slate shingles) 8e/No
BANTAM (sliding door hardware) 18d/Gr
BAR-GRILLE (area wall covers) 2i/Ho
BAR-RAY (x-ray protective products)...22e/Ba
BAR-X (metal lath) 12a/Wh
BAR-Z (steel stud partition systems)..12a/Wh
BARCLAY (bathtubs) 27a/Ri
BARCOL COUNTERDOOR (counter doors) 23d/Ba
BARCOL DOORMAN (door operators).16i/Ba
BARCOL OVERDOOR (overhead doors) 16i/Ba
BARCOL WARDROBEDOOR (wardrobe doors) 23d/Ba
BARNHIDE (paint) 15/Pi
BARRELED SUNLIGHT (paints) 15/Ba
BARRETONE (ceiling tile) 10a/Bar
BARRETT (built-up roofing) 8a/Ba
BARRETT (damproofing and water-proofing) 9/Ba
BARRETT (insulating board) 10a/Bar
BARRETT-HOLT (roof connections) 8a/Ba
BARRINGTON (locks) 18e/Sc
BARTON (urinals) 27a/Bri
BASE FLO (furnaces) 31a/Ame
BASEAL (joint fillers) 2i/Se
BASEDUCT (raceway systems) 32b/Na
BATHMASTER (tub enclosures) 27c/GL
BAXBOARD (gypsum wallboard) 12c/Uni
BAXCO (fire-retardant treated wood) .5a/Ba
BAYPORT (toilet compartments) 22b/Ac
B-E-H (insulation) 10a/Ba; 11a/Ba
BEADEX (pattern glass) 7a/Am
BEAUFORD (rolling grilles) 16g/Ab
BEAUTY-LINE (wood windows) 17c/An
BEAUTY-LOK (paint products) 15/Sh
BEAUTY QUEEN (kitchen equipment)..25b/To
BEAUTYWARE (plumbing fixtures) 27a/Bri
BECO (louvers) 20d/Be
BEE-CLAWS (anchor slots).....2i/Gat
BEE-CLIPS (anchor slots) 2i/Gat
BEE-HIVE (anchor slots) 2i/Gat
BEE-NUTS (nuts) 2i/Gat
BEE-SNAPS (anchors) 2i/Gat
BEL-AIRE (ventilating hoods) 25a/Em
BEL-CRAFT (waterproofing system) 9/Be
BEL-TEL (concrete inserts) 2i/Ho
BELL (wiring devices) 32b/Be
BELMAR (lighting fixtures) 33a/Be
BELT-VEYOR (conveyors) 24d/St
BELTOR (curtain cubicles) 22c/Be
BENNING (water closets) 27a/Ca
BENWOOD (stains, fillers) 15/Moo
BENWOOD HILUSTRE (varnish) 15/Moo
BENWOOD LOLUSTRE (varnish) 15/Moo
BERESFORD (rolling grilles) 16g/Ab
BERGER (steel lockers) 23d/Re
BERKLEY (lavatories) 27a/Ri
BERKO (heaters, heating systems)....31h/Ber
BERKO-MATIC (thermostats) 31h/Ber
BERMICO (conduit, tubing) 32b/Br
BERMICO (sewer pipe and fittings)..29a/Bro
BERMIDRAIN (drainage pipe) 29a/Bro
BERMIGATION (irrigation pipe) 29a/Bro
BERMIROAD (drainage pipe) 29a/Bro
BERMISEPTIC (sewer pipe) 29a/Bro
BERMISLEEVE (gas pipe) 29a/Bro
BERMUDA (ceramic tile) 13c/Ro
BERRY (garage doors) 16i/Be
BERTCO (permanent concrete forms)....2i/Bur
BERYLSTONE (plastic floor covering) ..13i/Co
BEST (signs) 23a/Be
BESTEEL (curtain tracks) 23g/Au
BESTWALL (gypsum products) 2d/Be; 12c/Be; 12c/Bes
BETH-CO-WELD (piping) 2f/Bet
BETH-CU-LOY (steel sheet) 2f/Bet
BETHCON (steel sheet) 2f/Bet
BEVELITE (glass) 7a/Mi
BEVERAGE-AIR (refrigerated display cases) 26a/Be
BEVERLY (lavatories) 27a/Cr
BI-ACOUSTIC (horns) 34a/AL
BI-POST (downlights) 33a/Ra
BIARRITZ (plastic floor tile) 13i/Bo
BIFOLD (doors, operators) 16h/CL
BILCO (doors, hatchways) 16J/Bi
BILDRITE (sheathing) 2i/Ins; 10a/Ins
BILT-IN (storm and screen window units) 17a/Dev
BILT-IN (water coolers) 30d/We
BILT-WELL (wood cabinets) 25b/Car
BILT-WELL (wood windows) 17c/Car
BILTIN (window subframes) 17b/Ho
BIRCHFACE (partitions) 22a/Wh
BITUMASTIC (coatings) 8a/Ko
BLACK-TITE (caulking compound) 7c/Di
BLACK DIAMOND (roofing) 8a/Ba
BLACKTEX (window shade fabric).....19c/St
BLACK SHIELD (roofing) 8a/Ba
BLAKE (bathtubs) 27a/Ri
BLAKESLEE-BUILT (food service equipment) 26b/BL
BLASCRETE (radiation doors) 16m/Fi
BLAST COILS (electric duct space heaters) 31h/In
BLASTELE (blast resistant doors) 16m/Fi
BLASTITE (aluminum oxide grain)....13h/Car
BLAZE-SHIELD (fireproofing) 12e/Co
BLENDWOOD (wood blocks) 13J/Bru
BLENDTEX (tile and plank finish) ..10a/Uni
BLISS (windows) 17b/BL
BLO-FAN (fans, ventilators) 25a/Em
BLOCKBED (asphalt emulsion) 13i/Has
BLOCKMASTIC (mastic) 13i/Has
BLODGETT (ovens) 26c/BLo
BLOK-JOINT (joints) 4h/Car
BLOK-LOK (masonry reinforcement) ...4h/Aa
BLOK-MESH (masonry reinforcement) .4h/Car
BLOWER-LITE (blowers) 25a/Em
BLUEBIRD (bottle coolers) 26a/La
BLUE BOND (cement) 4i/No
BLUE-LAKE (pool equipment) 23k/La
BLUE RIDGE (glass, glass doors, spandrel glass) 7a/Am; 16d/Am
BLUE RIDGE (spandrel glass) 3e/Ame
BLUE STREAK (cement) 4i/No
BLUE STREAK (dispenser cards for pipe markers) 29a/Br
BLUMCRAFT (ornamental metal) 6e/BLu
BOBRICK (soap, lotion dispensers) ...27e/Bo
BOCA (steel doors, windows) 17b/Bo
BOLTA-FLOOR (floor, wall coverings) 13i/Ge
BOLTA-WALL (vinyl wall covering)...13k/Ge
BOMMER (hinges, mail boxes) 18e/Bo
BOND-CRETE (cement bonding adhesive) 9/Co
BONDCOTE (bonding agent) 13h/Ac
BONDCOTE (tile adhesive) 13i/FL
BONDCRETE (gypsum plaster) 12e/Un
BONDSETT (carpets) 13L/Le
BONDTITE (insulation adhesives) 10c/BaL
BONDWOOD (parquet flooring) 13J/Har
BONTEX (shade cloth) 13k/Co
BOOKVEYOR (book conveyors) 24a/La
BORAXO (soap dispensers, soap) 27e/Ty
BORDEN (floor gratings) 13a/Bo
BORG-WARNER (building insulation) 10a/Re
BORG-WARNER (screens) 19e/Re
BOSTON (autopsy tables) 23L/Ma
BOSTON (sinks) 27a/Bri
BOSTWICK (sheet lath) 12a/Na
BOUQUET (lighting fixtures) 33a/Lia
BOX-MESH-LOCK (reinforcing) 4h/Ho
BRACE-TITE (lathing system) 12a/Un
BRADFORD (rolling grilles) 16g/Ab
BRANDING-GARD (steak branders) ..26c/To

trade names

BRASCO (entrances, store fronts, window walls) 16a/Br
BRASCO WALL (window wall) 16a/Br
BREAK-BACK (concrete accessories) 2i/Su
BRESLIN (bathtubs) 27a/Ri
BRICTILE (brick, tile) 4f/St
BRIDJOINT (lathing system) 12a/Un
BRIGHT-GLAZE (tile) 13c/Mos
BRIKETTE (floor tile) 13i/Ro
BRIKRON (plasticizers) 9/Mas
BRIKSET (portland cement) 4i/Me
BRISK (waterproofing) 9/Br
BRISTOL (glass blocks) 3e/Pi; 7b/Pi
BRISTOL (locks) 18e/Sa
BRISTOL (lockset) 16b/Ce
BRISTOLITE (floor wax) 13m/Hu
BRIXMENT (masonry cement) 4i/Lo
BROADLITE (glass) 7a/Mi
BROADVIEW (mirrors) 27d/Mi
BROADWAY (bronze castings) 6e/Li
BROADWOOD (flooring) 13J/Ci
BROAN (blowers, fans, hoods, etc.)..31e/Br
BRODY (commercial and institutional seating) 23o/Br
BRONZALUN (bronze treads) 13b/Am
BRONZOGRIT (thresholds, treads)...13b/Wo
BROWN (sun control devices) 19e/Br
BRUCE (flooring) 13J/Bru
BRUCE-WAY (floor finish) 13J/Bru
BRUNNER (air compressors) 31a/Du
BRUNNER-METRIC (condensing units) 31a/Du
BUBBELET (water coolers) 30d/Eb
BUCKINGHAM (slate flooring and flagstones) 4c/Bu
BUCKINGHAM (slate roofing).....8e/Bu
BUDDY (towels, dispensers) 27e/Ste
BUDGETEER (sinks) 27a/Cr
BUDGEX (movable wall partitions)....22a/Ga
BUFF-BRITE (floor wax) 13m/In
BUFFALO BETTER-BUILT (extinguishers).30f/Fy
BUILT-IN THINLINE (air conditioners) 31a/Ge
BULATOR (grilles) 31f/He
BURKAY (gas water heater) 30c/Sm
BURNS (extruded aluminum walkway covers) 19e/Bu
BURNZIT (incinerators) 28a/Sp
BUSDUCT (conduits, bushbar systems) 32a/Ad
BUSTIN (gratings) 13a/Bu
BUTAFLEX (sealer) 13h/Pr
BUTCHER BOY (cold storage room doors) 23c/Bu
BUTLER (prefabricated steel buildings) 2J/Bu
BUTLERIB (corrugated panels) 2J/Bu
BUTT-WAY (store fronts) 16a/Nat
BUTTERFLY (damper regulator) 31f/Yo
BYERS 4D (wrought iron) 29a/By
BYLOY (steel) 29a/By
BYRNAPERTURE (hangar doors) 16h/By
BYRON (lavatories) 27a/Bri
BYZANTILE (tile) 13c/Mos
BYZANTINE (floor tile) 13i/Ro

C

CFI (lighting fixtures) 33a/Da
CF&I (fencing) 22g/Co
CHF (tables, chairs, stools) 23o/Ch
C-H-S (floor treatment) 9/Co
CM (piping and tubing) 29a/Lew
C-M (shower cabinets and receptors) 27c/Cu
CMC (adhesives) 13c/Ch
C-O-TWO (fire protection systems)....30f/Fy
CPC (laundry, rubbish chutes, brick size vents) 27f/Co
CRA (redwood) 5a/Ca
CWG (corrugated wire glass) 7a/Pe
C-S (brick size vents) 20d/Co
C-S (louvers, louvered penthouses)..20d/Con
C-S (sun shades) 19e/Con
C-S-C SHRINKPROOFER (masonary treatments) 9/Co
CABINETEER (sink tops) 25b/Ju
CAD (access doors) 16J/Bi
CADET (water coolers) 30d/Te
CADILLAC (signs, nameplates) 23a/Ca
CAFCO BLAZE-SHIELD 12e/Co
CAFCO SOUND-SHIELD (acoustical insulation) 11a/Co
CALAIS (plastic floor tile) 13i/Bo
CALCORE (porcelain enamel panels)..3c/Ca
CALCULITE (lighting fixtures) 33a/Lia
CALROD (dishwasher heater) 25a/Hot
CALROD (heating units) ...23a/Hot; 26c/Hot
CALROD (ranges) 25a/Gen
CALROK (accelerators, densifiers, waterproofing) 13h/Pr
CALSI-CRETE (roof planks) 2d/Ca
CALSLATE (chalkboards) 23e/So
CAMARGO (ceramic tile) 13c/Ca
CAMBRIDGE (autopsy tables) 23L/Ma
CAMBRIDGE (bathroom cabinets) ...27d/Mi
CAMBRIDGE (toilet compartments)...22b/Cu
CAMBRIDGE (ventilating hoods).....31e/Tr
CAMEL (water closets) 27a/Ca
CANOPY (lighting fixtures) 33a/Da
CANTEEN (background music system).34a/Auo
CANTEEN (food vendor units) 26a/Au
CANVASTEELE (window shade fabric).19c/St
CANTILITE (concrete planks) 2d/Co
CAP'N RAIL (ceramic tile trim).....13c/Roy
CAPITOL (key wall cabinets) 18e/Moo
CAPRI (mosaic tile) 13c/San
CAR-MON (garage ventilators) 31e/Ca
CARADCO (wood windows) 17c/Car
CARBO-JET (dispersed carbon black) ...9/So
CARBORUNDUM (abrasive grain for surfacing) 13h/Car
CARBOSOTA (creosote oil) 9/Ba
CARBOSOTA (wood preservatives) 8a/Ba
CARE-FREE (plastic flooring) 13i/Am
CAREY (expansion joints) 2i/Ca
CAREY (insulating panels) 8b/Car
CAREY (shingles) 8c/Ca
CAREY SUPER EBONTEX (masonry coatings, asphalt planks) 2i/Ca
CAREYLASTIC (sealing compounds)....2i/Ca
CAREYSEAL (tarred felt) 8a/Ca
CAREYSTONE (roofing, siding) 8b/Ca
CARLSTADT (railing system) 6e/BL
CARLTON (water closets) 27a/Bri
CARLYLE (tile) 13c/Mos
CARMASTER (electric elevator door operators) 24c/Gu
CARMEN (bidets) 27a/Bri
CAR-MON (garage ventilators) 31e/Ca
CARNIVAL (floor tile) 13i/Ke
CAROUSEL (lighting fixtures) 33a/We
CARRARA (structural glass) 3e/Pit; 7a/Pi; 13e/Pi
CARREL (desks) 23f/De
CASCADE (drinking fountains) 27a/Ca
CASCO (urinals) 27a/Ca
CASCOOL (drinking fountains) 27a/Ca
CASE (plumbing fixtures) 27a/Ca
CASETTE (water closets) 27a/Ca
CASHGARD (cash boxes) 23b/Di
CASTLE (carpet cushions) 13L/Am
CASTLITE (insulating roof tile) 2d/Fe
CASUAL (ceramic tile) 13c/We
CASWELL (drinking fountains) 27a/Ca
CAT (stand-by generators) 32c/Ca
CATA-COTE (concrete floor finish) ...13m/In
CATERPILLER (stand-by generators) ..32c/Ca
CATHEDRAL (expanded metal) 6e/Un
CAULKTITE (caulking compounds) 9/La
CAVALIER (bathroom cabinets,) accessories) 27d/Mi
CAVITATOR (sewage treatment systems) 30a/Ye
CAVITETTE (package home sewage disposers) 30a/Ye
CAVITY (acoustical tile) 11a/Ce
CAVITY-BOX-MESH-LOCK (reinforcing) 4h/Ho
CAVITY-LOK (masonry reinforcement) 4h/Aa
CAVITY-MESH-LOCK (mortar joint reinforcement) 4h/Ho
CECO (aluminum windows) 17a/Ce
CECO (curtain walls) 3a/Ce
CECO-MEYER STEELFORM (concrete forms) 2a/Ce
CECONOMY (basement windows) 17b/Ce
CEIL-N-WALL (fans) 31e/Fa
CEILINGLITE (plastic skylight ceiling panels) 20a/Va; 20a/Van
CEL-BEAM (floor systems) 2b/Mah
CELESTIAL (plastic flooring) 13i/Am
CELL-U-BLANKET (blanket insulation) 10a/Wo
CELLINI (floor tile) 13i/Ro
CELLU-TONE (paint) 15/Pr
CELLUDECK (roof decks) 2c/InL
CELLUFLOR (steel floor panels) 2b/In
CELO-ROK (gypsum products).2d/Ce; 10a/Ce
CELOTEX (acoustical materials) 11a/Ce
CELOTEX (cant strips, insulation, etc.) 10a/Ce
CELOTONE (mineral fiber tile) 11a/Ce
CEM-SEAL (floor sealers, finishes) 13m/Hi
CEMENT ENAMEL (cement enamel) ...13h/Ce
CEMENTHIDE (paint) 15/Pi
CEMENTICO (cement base paint).....15/Un
CEMENTONE (joint fillers) 2i/Se
CEMESTO (insulating panels) 10a/Ce
CENTRIFLOW (roof ventilators) 20c/Bu
CENTRI-PAC (pumps) 30a/Au
CENTRILATOR (roof ventilators) 31a/CL
CENTRILINE (pipe linings) 1a/Ro
CENTURY (locks) 18e/Sc
CENTURY (toilet, shower compartments) 22b/Sa
CENTURY-LARCO (automatic bubblers) 30d/Ce
CERAMICA VENEZIA (ceramic mosaic tiles) 13c/Mu
CERAMIX (tile and ceramic substitute) 13h/Pr
CERAMO STEEL (chalkboards) 23e/Go
CERCO (sealers) 9/Ce
CEREFLUX (masonry treatments) 9/Ce
CEREPEL (inorganic paint) 9/Ce
CERESIT (water repellents) 9/Ce
CERETINT (cement colors) 9/Ce
CEROMASTIC (patching cement) 9/Ce
CEROPHALT (crack or joint fillers) 9/Ce
CERTAGLAS (built-up roofing) 8a/Ce
CERTAIN-TEED (building insulation) 10a/Cer; 10a/Cet
CERTAIN-TEED (built-up roofing) 8a/Ce
CERTAIN-TEED (gypsum roof decks)....2d/Be
CHALICE (locksels) 18eCo
CHALKROBE (portable chalkboard) ..23d/Vo
CHALLENGE (porcelain enamel curtain walls, panels) 3c/Ch
CHALLENGER (furnaces) 31a/Yk
CHALLENGER (locks) 18e/Ch

CHAMBERLIN (detention screens) 19a/Ch
CHAMBERLIN (weather strips) 19b/Ch
CHAMPION (air conditioners) 31a/Yk
CHAMPION (bathtubs) 27a/Cr
CHAMPION (gauging plaster) 12e/Un
CHAMPION (metal bathroom accessories) 27d/La
CHAMPION (overhead doors) 16i/At
CHAMPION (overhead doors) 16i/Co
CHAMPIONSHIP (diving boards) 23k/Ki
CHAN-L-FORM (steel studs) 12a/Bo
CHANCELLOR (key drawer files) 18e/Moo
CHANNEL (lighting fixtures) 33a/Mi
CHANNEL-LAP (hardboard siding panels) 10a/Ce
CHANNEL-RIB (roofing) 2c/Sm
CHAR-GRILL (barbecue grilles).....31L/Ma
CHARGOMATIC (emergency lighting units) 33a/EL
CHARLOTTE (lavatories) 27a/Cr
CHASE (flashings) 8g/Ch
CHASE (wire screening) 19a/Cha
CHAUCER (lavatories) 27a/Bri
CHECKER (coat and hat racks).....23d/Vo
CHECKERTONE (matting) 13i/Ar
CHELDUOGEAR (dumbwaiters) 24a/Ch
CHELGEAR (dumbwaiters) 24a/Ch
CHELMSFORD (granite) 4a/FL
CHELNOGEAR (dumbwaiters) 24a/Ch
CHELWINDLASS (dumbwaiters) 24a/Ch
CHEM-CHECK (valves) 29a/Kr
CHEM-COCK (valves) 29a/Kr
CHEM-FI (roofing process) 8a/Ba
CHEMCLAD (plastic-clad doors) 16c/Bou
CHEMCORE (fire door cores) 16c/Bou
CHEMIGLAZE (plastic panel protection) 7d/AL
CHEMTROL (valves) 29a/Kr
CHENEY (metal flashing, reglets, gravel stops, siding) 8g/Che
CHEVRON-TREDS (treads) 13i/Ama
CHEROKEE (tile) 13c/Mos
CHESHIRE (finishing lime) 12e/Un
CHI-TEN (lock protective material) ..23b/He
CHICAGO (spring hinges) 18e/Chi
CHILDERS (carports, walkway covers) 19e/Ch
CHIME-MATIC (signal systems) 34a/Ex
CHINALINE (enamel) 15/Ba
CHINAVOGUE (bathroom accessories) 27d/Ha
CHINC (metal flashing, reglets, gravel stops, siding) 8g/Che
CHIPSTONE (floor tile) 13i/Ro
CHORE BOY (incinerators) 28a/In
CHROMA-SHAKE (asbestos-cement siding) 8c/Na
CHROMA-TEX (asbestos-cement siding) 8c/Na
CHROMALOX (heaters) 26b/Ha
CHROMATE (primer) 15/GLi
CHRYSTEX (clay floor tile) 13c/Na
CIRCLAIR (film driers) 23L/Ge
CIRCLELUX (outdoor flourescent lighting) 33c/Pf
CLARCO (unit heaters) 31a/CL
CLAREMONT (locks, lock escutcheons) 18e/Sc
CLARIDGE (chalkboards, tackboards, etc.) 23e/CL
CLARITONE (acoustical tile) 11a/Ba
CLARK (doors, operators) 16h/CL
CLARK GLIDE (nylon shoes) 17b/CLa
CLARK SEAL (stainless steel windows).17b/CLa
CLASSIC (bathroom accessories) 27d/Pa
CLASSIC (mail chutes) 23b/Cu
CLASSIC-SHAKE (asbestos-cement siding shingles) 8c/Na
CLAY-BURN (ceramic glazed tile) 13c/CL
CLAYCRAFT (brick, tile) 4f/CL
CLAYMORE (water closets) 27a/Ri
CLAYTON (water closets) 27a/Ri
CLEAR BOND (curing, hardening, sealing compound) 9/Gu
CLEAR-COAT (masonry treatments).....9/Am
CLEAR-CRETE (concrete floor sealer)..13m/In
CLEAR-SELE (sealers) 15/Ru
CLEARLITE (sheet glass) 7a/Fo
CLEARTEX (lighting louvers) 33a/Da
CLEARTONE (sealers) 15/Moo
CLEARVIEW telephone booths) 34a/Sh
CLEAVER-BROOKS (boilers) 31g/CL
CLERESPAN (steel joists) 2f/Tr
CLEVELAND (steel products) 2i/CL
CLIMASTER (furnaces) 31a/Yk
CLIMATROL (heating, cooling units) 31b/Mu
CLIMAX (ventilating fans) 31e/Mi
CLIPPER (dishwashers) 26b/In
CLOCKMASTER (time systems) 34b/Mi
CLOISONNE (vinyl flooring) 13i/Goo
CLOS-RIB (roof decking) 2c/Sm; 3a/Sm
CLOSNOS (nosings) 13a/KL
COADOR (doors) 16i/Co
COAST LINE (metal doors, frames)....16b/Co
COBBLETEX (ceramic tile) 13c/Sum
COCO (laminated beams and arches)..2e/Co
COCOON (sprayable vinyl coating).....9/HL
CODLER-TOT (child's water cooler)..30d/Su
COFAR (forms, reinforcement).....2c/Gr
COILDOR (truck doors) 16g/WiL
COIL-WAL (automatic partitions) ...22d/Du
COL-ITE (letters and signs) 6f/Co
COLCAP (roofing felt) 8a/Ca
COLD-STIK (mastic cement) 13J/Bru
COLDPOINT (drink dispensers) 26d/Ba
COLLOPAKE (paint) 15/Ca
COLONEL (flush wood doors) 16c/Ge
COLONIAL (bathroom cabinets, accessories) 27d/Mi
COLONIAL (custom built screens) 19a/Co
COLONIAL PLANK (hardwood flooring) 13J/Har
COLONIAL-HITES (letters) 6f/Co
COLOR BRITE (masonry coating) 13h/Pr
COLOR-CEIL (indirect luminous ceilings) 33a/Si
COLOR-CORK (bulletin boards).....23e/Go
COLOR-CORK (burlap-backed, vinyl-topped cork) 13i/Got
COLOR COTE (concrete floor finish) .13m/In
COLOR-CRETE (concrete floor finish)..13m/In
COLOR GLO (lighting fixtures).....33a/Ge
COLOR-LITE (doors) 16a/Ha
COLOR-RITE (metal lath) 12a/Un
COLOR-TEX (siding) 8c/Ru
COLORAMICS (ceramic facing tile) ...4f/CL
COLORBESTOS (asbestos sidewalls) ..10a/Jo
COLORBESTOS (shingles) 8c/Jo
COLORBLEND (clay tile) 13c/Mo
COLORBRITE (floor hardeners) 9/La
COLORCLAD (entrance units) 16b/Ov
COLORCRON (hardeners, colorers) ...9/Mas
COLORCURE (curing compounds) 9/Ce
COLORFLOOR (concrete floor paint)....9/Tr
COLORLINE (partitions) 22a/Ui
COLORMIX (colors) 9/Mas
COLOROBOT (color mixing device)..15/Ma
COLOROIL (floor finishes) 9/Mas
COLOROLD (stainless steel) 17b/CLa
COLORSLIP (hardeners) 9/Pa
COLORSOL (masonry sealers) 15/Ma
COLORTAK (vinyl textured tackboard) 23e/Be
COLORTONE (floor finishes) 13m/Hi
COLORUNDUM (colors, hardeners) 9/Ho
COLORWAX (floor wax) 9/Mas
COLUMBIA (bathroom cabinets) 27d/Co
COLUMBIA-HALLOWELL (school shop furniture) 23i/St
COM-PAC-CASE (book storage units)...23f/Ar
COMBINATION (toilet tissue holders) 27e/Cr
COMET (lockset) 16b/Ce
COMFORT CONDITIONING (air conditioning systems) 31a/FL
COMFORTMAKER (air conditioners) 31a/Ame
COMFORTORC (upholstered furniture) 23i/Sim
COMMANDER (shade cloth) 19c/Jo
COMMANDER (shower fixtures) 27b/Sp
COMMODITY LINE (door frames) ..16b/Amw
COMMODORE (dishwashers) 26b/In
COMPAC-FOLD (folding tables, benches) 23i/Sc
CON-GLAZE (glazing compounds) 7c/Co
CON-O-GUM (mastic compound) 7c/Co
CON-O-SEAL (curtain wall sealant)....7c/Co
CON-O-TAPE (tape) 7c/Co
CONCEPT 70 (plastic floor covering)..13i/Co
CONCORD (metal bathroom accessories) 27d/La
CONCORD (toilet compartments) ...22b/Ac
CONCORD (ventilating hoods) 31e/Tr
COND-A-PAC (pumps) 30a/Au
CONDUCT-O-TILE (conductive tile) ..13c/Am
CONDUCTILE (non-sparking tile) 13i/Vi
CONDUCTITE (conductive tile mortar) 13c/Ka
CONE-FAST (concrete accessories) 2i/Su
CONFETTI (asphalt floor tile) 13i/Ma
CONI-VANE (ventilators) 20c/AL
CONQUEROR (overhead doors) 16i/At
CONQUISTADOR (overhead doors) ..16i/Co
CONSOLITE (dome skylights) 20a/Co
CONSOWELD (plastic panels) 14a/Co
CONTEMPO (vertical louvered shutters) 19d/Pi
CONTEMPO-LITE (plastic diffusers) ...33a/Lin
CONTEMPORARY (display cases) 23e/Po
CONTINENTAL (carports) 19e/Ch
CONTINENTAL (lock escutcheons)....18e/Sc
CONTINENTAL (steel fencing) 22g/Con
CONTINUOUS STRIP (wood flooring) 13J/Ro
CONTROLITE (venetian blinds) 19d/Mo
CONVASEAL (asphalt hardboard) 9/Me
CONVERSION (folding wood doors)..16e/Ne
CONVEY-ALL (conveyor belts) 22g/Cy
COOK (ventilators) 20c/Co
COOKSON (wood partitions).....22d/Co
COOL-R-FRIG (refrigerator compartment hot and cold water cooler).....30d/Su
COOLER-HOT (hot water accessory)..30d/Su
COOLERET (water cooler) 30d/We
COOLERO (ridge ventilators) 20c/Hi
COOLITE (glass) 7a/Mi
COP-O-TOP (flashings) 8g/Ch
COP-R-CIDE (masonry treatments).....9/We
COP-R-FLASH (flashing) 8g/Ph
COP-R-TEX (flashings) 8g/Wa
COPPER-CHAMP (flashings, damproofing) 8h/Lu
COPPERSEAL (flashings) 8g/Wa
COPPERWELD (reinforcing) 4h/Ho
COPR-FIBRE (building, roof insulation) 10a/Fo
COPR-FIBRE (roof insulation) 3f/Fo
COPYFLEX (reproduction machines) ..23b/Br
CORAL (tub or shower enclosures)....27c/CL
CORBIN (door hardware) 18e/Co

trade names

CORDLEY (coolers, water fountains) .30d/Co
CORDLEYAC (cooler racks) 30d/Co
CORDWALL (water coolers) 30d/Co
CORINTHIAN (vinyl tile) 13i/Go
CORK-GLO (floor tile) 13i/Bon
CORKATILE (asphalt floor tile).....13i/Hak
CORKROBE (portable bulletin boards) 23d/Vo
CORKSTYLE (asphalt tile) 13i/Arm
CORKTITE (perimeter insulation) 9/Me
CORKTONE (floor tile) 13i/Ke
CORKUSHION (flooring mastic) 13J/Ro
CORLON (plastic floor covering) 13i/Arm
CORNALATH (lath) 12a/AL
CORNER-CLIPT (wood block flooring) 13J/Sou
CORNER-EX (corner beads) 12a/In
CORNER-LOK (masonry reinforcement) 4h/Aa
CORNERITE (corner beads) 12a/Bo
CORNERITE (corner reinforcement) 2c/Tr
CORNERITE (metal lath) 12a/Un
CORNERITE (wing arch bead) 12a/Pe
CORNICE TEMPER (zinc alloy flashing) 8g/Co
CORONADO (bathroom accessories).27d/Ha
CORONET (sliding glass doors) 16d/AL
COROTOP (fibrous glass mats) 8a/FL
COROX (oven heaters) 25a/We
CORRALINE (lighting fixtures) 33a/Da
CORRALOUVER (lighting fixtures) 33a/Da
CORRALUME (lighting fixtures) 33a/Da
CORRELATION (desks) 22a/Co
CORRI-LATOR (lighting fixtures) 33a/Mi
CORR-I-LIER (lighting fixtures) 33a/Mi
CORRUCOTE (liquid plastic) 7d/Jo
CORRUFORM (steel forms) 2a/Gr
CORRU-LUMINUS (luminous ceilings) 33a/Lum
CORRULUX (translucent panels) 7d/Jo
CORRUMASTIC (sealers) 7d/Jo
CORRUTONE (acoustical panel) 11a/Un
COSMETTE (lavatories) 27a/Ca
COSMIC (lockset) 16b/Co
COSMICOAT (asphalt sealer) 9/Ha
COSMILASTIC (tar-rubber emulsion)...9/Ha
COSMIPATCH (asphalt patchings for floors, pavement) 9/Ha
COSMO-DOMES (plexiglas dome skylights) 20a/Bo
COSMOLITE (floor wax) 13m/Hu
COTSWOLD (casement windows) 17b/Ho
COUNSELOR (lighting fixtures) 33a/Mi
COUNTER-FLO (furnaces) 31a/Ame
COUNTER-FLOW (cooling towers) ..30b/Ma
COUNTERCHEF (surface units) 25a/Pr
COUNTERFLO (space heaters) 31c/Dr
COUNTERFLOW (cooling towers) 30b/Ma
COUNTERFLOW (heating, cooling units) 27a/Cr
COUNTERFLOW (winter air conditioners) 31a/Ai; 31a/Air
COVER CRETE (finish plaster) 12e/Na
COYLAN (water closets) 27a/Ri
CRAB ORCHARD (quartzite) 4c/Cr
CRAFTCO (cement paint) 15/Nat
CRAFTEX (paint) 15/Nat
CRAFTITE (wall coating, sealer) 15/Nat
CRAFTLINE (linoleum) 13i/Arm
CRAFTONE (resin-emulsion) 15/Nat
CRAFTWALL (plywood panels) 5b/Ro
CRANE-LINE (boilers, cabinets) 27a/Cr
CRAXEMENT (patching cement) 9/Ce
CREO-DIPT (shingles, stains) 8d/Cr
CREO-PINE (wood block flooring)...13J/Sou
CRESCRETE (hardeners) 9/Ce
CRESMIX (floor resurfacers) 9/Ce
CRESOLAC (water repellents) 9/Ce
CREST (ceramic tile grout, mortar)....13c/Ka
CREST (wood doors) 16c/Su
CRESTLINE (wood windows and doors).17c/Si
CRESTLYN (kitchen units) 25b/Cr
CRESTMONT (fixtures, sinks) 27a/Cr
CRESTONE (acoustical materials) 11a/Ar
CRESTOPANE (insulating glass) 17c/Si
CRESTWOOD (flooring) 13J/Bru
CRESTWOOD (locksets) 18e/Co
CRETEMIX (concrete accelerator, densifier) 9/Tr
CRETEPLANK (concrete slab) 2d/Mar
CRITERION (bathtubs, lavatories, water closets) 27a/Cr
CRITERION (steel chairs) 23a/Ha
CRITTALL (steel windows) 17b/Cr
CROSS-FLOW (cooling towers) 30b/Ma
CROWN (chalkboards) 23e/We
CROWN (flush valves) 27b/SL
CROWN (lavatories) 27a/Cr
CROWN (lighting fixtures) 33a/MiL
CROWN PRINCE (paper towel holders) 27e/Cr
CROWN RECESS (towel cabinets) 27e/Cr
CROWN VINYL (vinyl flooring) 13i/Sa
CRYSCOAT (phosphate undercoat) ...23d/Pe
CRYSTAL (roofing asphalt) 8a/Ba
CRYSTAL-GLAZE (floor, wall tile)....13c/Sty
CRYSTALETTES (floor, wall tile).....13c/Sty
CRYSTALITE (vinyl floor tile) 13i/Ke
CRYSTALLINE (ceramic tile) 13c/We
CRYSTALLINE (glazed tile) 13c/Ro
CRYSTALOID (masonry treatments) ...9/Co
CRYSTEEL (chalkboards) 23e/Ed
CRYSTO-GLAZE (ceramic floor tile)...13c/CL
CRYSTOLON (sidewalk abrasive) 13g/No
CRYSTOPAL (lighting glass) 33b/Co
CU LOUVRES (louvered ceilings, lighting fixtures) 33a/Ne
CUBER-COOLER (beverage coolers)...26a/Jo
CUBI-TRAC (cubicle curtain track)....22c/Ad
CUMMINS (diesel generator units) ..32c/Cu
CUPPLES (aluminum windows) 17a/Cu
CUPPLES (curtain walls) 3a/Cu
CUPPLES (grid ceiling systems) 11b/Cu
CUPRA (locks) 18e/Sc
CURB-SIDE (depositories) 23b/Mo
CURE-IT (concrete curing compound)..13h/Pr
CURE-N-SEAL (concrete floor curing agent, sealer) 9/Tr
CURE-SEAL (masonry treatments) 9/Co
CURECOTE (curing compounds) 9/Up
CURON (acoustical, insulating wall and ceiling coverings) 13k/Cu
CURTISTRIP (raceways) 33a/Cu
CURTITION (accordion doors, partitions) 16e/Cu
CURVIT-SURE (curtain tracks) 23g/Au
CUSH-N-CLIP (gypsum wallboard acoustical fastening system) 12c/Nat
CUSHION-PLY (laminated block floor system) 13J/Mo
CUSHION-SEAL (lampholders) 33a/Sto
CUSHIONER (secretaries' chairs) 23o/Re
CUSHIONTONE (acoustical materials).11a/Ar
CUSHIONTONE (fireproof formboard) 2d/Ar
CUSTOM CLOUD (floor tile) 13i/Ro
CUSTOMFOLD (sliding doors) 16e/Am
CUSTOM LINE (bathroom cabinets, accessories) 27d/Pa
CUSTOM-LINE (coat and hat racks) ..23d/Vo
CUSTOM-LINE (curtain walls) 3a/Ne
CUSTOM LINE (movable partitions) ...22a/Ar
CUSTOM LINE (skylights) 20a/Ma
CUSTOM ROYAL (doors) 16c/Un
CUSTOM-TINT (paint colors) 15/Nat
CUSTOMLINE (flush overhead doors) 16i/Mc
CUSTOMLINE (dishwashers, refrigerator-freezers) 25a/Hot
CUSTOMLINE QUIKONECT (refrigerator racks) 25a/Hot
CUSTOMUSIC (background music system) 34a/Auo
CUTLER (mail and communication chutes) 23b/Cu
CUTLER (mail and letter boxes) 23b/Cu
CUTLER (mail handling equipment)..23b/Cu
CUTLER-HAMMER (controls, control centers) 32a/Cut
CYCLONE (fencing) 22g/Cy
CYCLORAMA (curtain tracks) 23g/Kn

d

DFPA (Douglas Fir Plywood Assn.)....5b/Do
D & H (aluminum and vinyl-on-steel doors) 16a/Dui
D&H (fire doors) 16b/Du
D & H (wood fire doors) 16c/Dus
D-J (mortar) 9/St
D-S (fire resistant doors) 16c/Ow
D-S (partition studs) 12a/Do
DA-NITE (heating controls) 31i/Mi
DAIRY-STOR (refrigerator racks) 25a/Hot
DAL-DECA (glazed tile) 13c/Da
DAL-DURA (glazed tile) 13c/Da
DAL-TILE (glazed tile) 13c/Da
DALMATIAN (vinyl floor tile).....13i/Do
DALMO (wood window hardware)....18b/Da
DANA (urinals) 27a/Ri
DANBY (marble) 4b/Ve
DARACONE (masonry water repellent).9/De
DARATARD (concrete retarder) 9/De
DARAWELD (concrete bonding agent)..9/De
DAREX AEA (air-entraining admixture).9/De
DARI-O-MATIC (milk dispensers) 26a/Au
DARIEN (locks) 18e/Sa
DARIEN (lock escutcheons) 18e/Sc
DARK-O-MATIC (lightproof window shades) 22e/Ra
DARKO (window shades) 19c/Jo
DATACENTER (controls) 31i/Mi
DATA-LENS (lighting glass) 33b/Co
DAVARLINE (metal protection coating)..9/Ha
DAVIS (efficiency kitchens) 25b/Da
DAWES (urinals) 27a/Ri
DAY-BRITE (lighting fixtures) 33a/Da
DAY-LITE (enamel) 15/GLi
DAYLUME (lighting fixtures) 33a/Da
DAY-TEX (lighting louvers) 33a/Da
DAYTON (fire protection equipment)..30f/Fy
DE LUXE (medicine cabinets) 27d/Ke
DE LUXE (water closets) 27a/Ca
DE WITT (sealing and caulking compounds) 29a/De
DEAN (incinerators) 28a/Wa
DEBONAIR (refrigerator-range-sink combination) 25b/Ac
DECOR (insulating tile) 10a/Na
DECOR-A-LITE (lighting fixtures) ...33a/MiL
DECORA (glass blocks) 3e/Pi; 7b/Pi
DECORAIL (plastic handrail) 6e/BL
DECORALT (decorative coatings) 9/FL
DECORATOR (ceramic tile) 13c/We
DECORAY (linoleum) 13i/Arm
DECORDER (aluminum and vinyl-on-steel doors) 16a/Dui
DECORDER (wood fire doors) 16c/Dus
DECORFOLD (accordion doors) 16e/Cu

DECOTILE (tile) 13c/Mos
DECROBORD (ceiling panels and wall plank) 10a/Jo
DECROTONE (ceiling panels) 10a/Jo
DED-LEVL (bitumen) 8a/Fr
DEEP SET (terrazzo seal) 9/Gu
DEEP-TEX (asbestos-cement siding shingles) 8c-Na
DEEPTEX (asbestos shingles) 8c/Ke
DEFENDER (locksets) 18e/Co
DEHYDRATINE (accelerator, water repellent, hardeners) 9/Ho
DEKORON-COATED (conduit) 32b/Re
DE-LUXE (toilet partitions) 22b/AL
DELCO-MATIC (door operator) 16i/Cra
DELFAIR (wood flooring) 13J/Fa
DELIA (door slats) 16g/Ba
DELTA (ball faucets) 27b/De
DELUXE (bathroom cabinets) 27d/Mi
DELUXE (chalkboard trim) 23e/Go
DELUXE (display cases) 23e/Po
DELUXE (shower doors and enclosures, tub enclosures) 27c/Ke
DEMICON CURE-HARD (concrete coating) 9/Mc
DENSE-TOP (surface hardener) 13h/Pr
DENSET (accelerators) 9/Pa
DENTYN (lavatories) 27a/Ri
DENVER (sinks) 27a/Bri
DERBY (lighting fixtures) 33a/Da
DESIGN X (linoleum) 13i/Co
DETECT-A-FIRE (fire detectors) 34a/Fe
DETECTEDGE (safety devices) 22d/Co
DETREX POWER FLOW (swimming pool filters) 23k/De
DETROITER (garage doors) 16i/Be
DEVAC (glass walls) 17a/Dev
DEVOPAKE (paint) 15/Dev
DEVRON (epoxy resins) 9/Tru
DEWEY (urinals) 27a/Ri
DEWK (plastic sealers).....29a/De
DEX-O-KOTE (vinyl coatings) 13i/Cr
DEX-O-TEX (flooring and roof deck coverings) 13i/Cr
DIAFLO (air conditioners).31a/Am; 31a/Ame
DIAL-A-DRINK (bubblers) 30d/Eb
DIAL-A-FOOD (food warming controls) 26b/Ba
DIAL-ESE (plumbing, fittings) 27a/Cr
DIAL-O-VENT (garage ventilation)...31e/Na
DIAL X (telephone systems).....34a/Str
DIAMOND (flush valves) 27b/Sp
DIAMOND-CRETE (masonry treatments) 9/Co
DIAMOND LUSTRE (wood floor finish) 13J/Wo
DIANA (cabinet sinks) 25b/Yo
DIANA (lavatories) 27a/Cr
DIATOMITE (pool filters) 23k/La
DIEBOLD (bank equipment) 23b/Di
DIELDRIN (termite control) 5d/Sh
DIELUX (lighting fixture frames) 33a/Pr
DIFFAXIAL (loudspeakers) 34a/Un
DIFFUSA-LITE (hung ceiling units) 33a/Di
DIFFUSAIRES (air diffusers) 31f/Har
DIFFUSEX (pattern glass) 7a/Am
DIFFUSICONE (loudspeakers) 34a/Un
DILATO (joint fillers) 9/Wet
DIPLOMA (window shades) 19c/Jo
DIPLOMAT (electric door operators)..16g/La
DIPLOMAT (key wall cabinets) 18e/Moo
DIPPERWELL (counter sanitation units) 26d/Ba
DIRECT-A-CALL (private telephone system) 34a/Ke
DIRECTILATOR (roof ventilators) 31a/CL
DIRECTOR (lighting fixtures) 33a/Sm
DIRECTOR LINE (office desks, files)....23o/Ar
DIRECTORY (telephone booths) 34a/Sh
DISCO (aluminum windows, curtain walls) 17a/De
DISCO (prison equipment) 23m/De
DISH-O-LATER (dishwashers) 26d/Ba
DISPOSALL (food waste disposers) 24a/Gen; 25a/Hot
DISPOSALL (incinerators) 28a/Go
DIVIDER-WALL (partitions) 22a/Hau
DIXIE (floor hinges) 18e/Bo
DOHERTY SILENTAIRE (roof ventilators) 31e/Do
DOME-AIR (ventilating skylights) ..20a/Van
DOMELITE (plastic dome skylights)..20a/Van
DOMETTE (small capacity fans) 20c/Pe
DOMEX (roof ventilators) 20c/Pe
DONN (ceiling suspension systems) ..11b/Do
DONORA (urinals) 27a/Ri
DONOVAN (windows) 17b/Tr
DOORMASTER (garage doors) 16i/Cra
DOORNAMENTS (door panel designs)16i/Ba
DOR-GARDS (hinge covers) 18e/Do; 18e/Dor
DOR-LESS-DOR (air curtain doors) ..16L/Su
DOR-O-MATIC (door controls) 18e/Do; 18e/Dor
DOR-SEAL (weatherstripping) 19b/Ch
DORCEL (garage doors) 16i/Ove
DORCHESTER (locksets) 18e/Sc
DOREX (air recovery equipment) 31f/Co
DORM LINE (dormitory furniture) 23i/Sim
DORWALL (aluminum sliding glass doors) 16d/Ac
DOUBLE-FLOW (cooling towers) 30b/Ma
DOUBLEX (pattern glass) 7a/Am
DOUBLE WHITE (paint) 15/Ca
DOWNLITE (lighting fixtures) 33a/Ce
DOXPLANK (reinforced concrete slab) 2d/Do
DRAFTITE (weatherstripping) 3f/St
DRAFTITE (wool pile weatherstrip)...17b/CLa
DRAIN-DRI (pumps) 30a/Ye
DRAINTRED (matting) 13i/Ar
DRAMALITE (lighting fixtures) 33a/Ce
DRAVO WELDED (gratings) 13a/Dr
DRAVO PRESSURE-LOCKED (gratings).13a/Dr
DREXEL (junior toilet compartments).22b/Ac
DREXEL (lavatories, water closets)....27a/Cr
DRI-COOLER (cooling towers) 30b/Ma
DRI-GLOSS (finishing wax).....15/Min
DRI MASTER (towel dispensers) 27e/St
DRI-RITE (enamel) 15/Na
DRI-SEAL (masonry treatments) 9/Co
DRI-SET (grouting) 13c/Ch
DRI-SPEEDWALL (tile) 4f/Na
DRI-VAC (wood flooring treatment) 13J/Ro; 13J/Rob
DRIFTONE (acoustical materials).....11a/Ba
DRIVE-ANCHOR (fencing posts) 22g/An
DRIVE-DUCT (fans) 31e/Pe
DRIVE-RITE (nails) 18a/In
DRIWAL (limestone coatings) 15/GLi
DROPOSITORY (depositories) 23b/Mo
DRUM N'HALF (incinerators) 28a/Br
DRYCOLOR (cement colors) 9/Pa
DRYCRETE (densifiers) 9/Pa
DRYDEN (lavatories) 27a/Bri
DRYFOL (building insulation) 10a/Re
DRYJOINT (pointing mortar) 9/St
DRYSEAL (cooper tube) 29a/Rev
DRYWAY (draingctes) 13a/Ir
DUAL-BLOWER (ventilating hoods)...31e/Br
DUAL DUCT (air diffusers) 31f/An
DUAL-LITE (emergency lights) 33a/Du
DUAL SEAL (rubber closures) 8b/Fa
DUALVENT (roof ventilators) 20c/Oc
DUAMESH (rib lath) 12a/Pe
DUBL-COVERAGE (asphalt shingles)...8c/Ru
DUBL-DOME (plastic skylights) 20a/Pa
DUBLECOTE (shingles) 8a/Ba
DUBUQUE (partitions) 22d/Du
DUCHESS (bathroom cabinets) 27d/Mi
DUETTE (bathroom cabinets) 27d/Mi
DUKE (water closets) 27a/Bri
DULAMEL (paints, enamels) 15/Moo
DUNBAR (urinals) 27a/Ri
DUO (group washing equipment) ...27a/Br
DUO-BASE (cove bases) 13g/In
DUO BLO (furnaces) 31a/Ame
DUO-CHECK (door checks) 18e/Ri
DUO-JOBMASTER (fastening tools) ..2i/Ram
DUO-TEX (tile finish) 11a/Ce
DUOLITE (safety glass) 7a/Pi
DUOLUX (hardboard panels)...8b/Ma; 8b/Mas; 14b/Ma; 14d/Mas
DUPLATE (plate glass) 7a/Pi
DUPLEX (corkboards) 23e/Be
DUPLEX (gratings) 13a/Ir
DUPLEX (loudspeakers) 34a/AL
DUPLEX (underlayment lining felt) ...13i/Co
DUPLEX (wallboard) 10a/Uni
DUR-A-BEAD (corner beads) 12c/Uni
DURA-DRI (masonry coatings) 15/Un
DUR-A-FLEX (sectional units).....23L/Du
DUR-O-LASTIC (caulking compounds)...9/We
DUR-O-WAL (masonry reinforcement) 4h/Du
DURA-STOP (hydraulic cement) 15/Un
DURA-TOPP (roofing) 8a/Ca
DURA-TUBE (heat exchangers) 31b/Ja
DURA-VENT (gas vent pipe and fittings) 31f/Du
DURA-WOOD (block, strip flooring)..13J/Bru
DURABILT (wood columns) 5c/Ha
DURACITE (chalkboards) 23e/CL
DURACLAD (gas water heaters) 30c/Sm
DURACO (greaseproof tile) 13i/Az
DURAFAX (hardeners) 9/Ho
DURAFLEX (thresholds) 19b/Dur
DURAFLOR (floor tile) 13c/Roy
DURAFLOR (rubber base coating) 13h/Pr
DURALAB (laboratory equipment, furniture) 23L/Du
DURALITE (aluminum windows) 17a/Am
DURALITE (wood floor sealer) 13m/In
DURAMIC (glazed brick) 4f/Ha
DURAPLASTIC (white portland cement) 4i/Unv
DURAPLY (doors) 16c/Un
DURAPLY (plywood panels) 5b/Un
DURASAN (vinyl-surfaced gypsum wallboard) 12c/Nat
DURASPEED (fire protection equipment) 30e/Gr
DURASPEED (sprinklers) 30e/Gr
DURASTEEL (chalkboards) 23e/CL
DURATACH (lighting fixtures).....33a/Wh
DURATITE (aluminum and steel skylights) 20b/Va
DURATONE (counter, sink tops) 25b/ELk
DURATREM (concrete floor topping)....9/Tr
DURAVAL (paint) 15/Un
DURCO (rope packing) 29b/Du
DURCON (laboratory sinks) 29b/Du
DUREX (lighting fixtures) 33a/Wh
DURHAM (public seating equipment).23i/Du
DURIRON (pipe, drains) 29b/Du
DUR-O-LASTIC (caulking compounds) ..9/We
DURO (toilet partitions) 22b/Fi
DURO-MIX (hardener, densifier) 9/Aq
DURO-SEAL (floor treatment) 9/Aq
DURO-TILE (spark arresters) 28a/Sar

trade names

DUROC (finish) 8c/Ru
DUROCON (metallic hardener) 9/Aq
DUROLITE (tileboard) 2i/Ins; 10a/Ins
DURON (hardboard) 10a/Uni
DUROPLATE (metallic aggregate) 9/Aq
DUROTRED (matting) 13i/Ar
DURUNDUM (non-metallic aggregate) ..9/Aq
DUSPOSAL (vacuum cleaning systems).28b/Va
DUSTITE (panelboards) 32a/Ad
DUSTON COLORTOP (masonry paint)...9/Ce
DUVINAGE (spiral stairs) 6h/Duv
DUX-BAK (masonry treatments) 9/Pa
DYFOAM (plastic foam insulation) 10a/Dy; 10b/Dy
DYNACURVE (fans) 31a/CL
DYNASEAL (door hardware) 16i/At

e

EH (noise reduction panels, sound barriers, sound-insulating doors) ...11a/Ha
ESR (racks) 23c/Ea
E-Z GLIDE (sliding door track) 18g/En
E-Z-OPEN (freezer door fasteners) 23c/Ja
E-Z SOAK (finish lime) 12e/Na
E-Z WALL (movable partitions) 22a/Un
E-ZEE LOC (wood awning windows)..17c/Wo
E-Z-S (ceiling suspension systems)...11a/Un
EZ-A-WAY (bleachers) 23J/Ber
EZY-CLEAN (rubber stairtreads) 13i/Ro
EARLY AMERICAN BRAND (shingles, fencing) 8d/Co
EASTERN'S STAR (venetian blinds) 19d/Ea
EASY ACCESS (flagpoles) 6g/Bab
EASY ACCESS (hatchways) 16J/Ba
EASY-FIT (steam supply headers) 31g/We
EASY MOLD (fiber tubes) 2a/Ap
EASY-ONE-COAT (cement base coating) 9/Tru
EBONITE (masonry treatments) 9/Co
ECLIPSE (compressors) 31a/Fr
ECON (display cases) 23e/Po
ECON-O-CLAMP (concrete forms).....2i/De
ECON-O-MOLD (concrete forms) 2i/De
ECONACOUSTIC (formboard) 2d/Na
ECONACOUSTIC (wood fiber tile) ...11a/Na
ECONO-FLAP (towel holders) 27e/Bro
ECONO-LINE (curtain walls) 3a/Ne
ECONO-LOK (masonry reinforcement) 4h/Aa
ECONO-RAIL (railings) 6e/New
ECONODOR (flush doors) 16m/Fi
ECONOLAST (plastic tile) 13i/Vi
ECONOMY (copper roofing) 8b/Am
ECONOMY (door frames) 16b/Wi
ECONOMY 250 (corrugated asbestos-cement roofing, siding) 8c/Na
ECONOMY WALL (curtain wall systems) 3a/Rey; 3a/Reg
ECONORIB (roof decking) 2c/Fe
ECONOSTOP (door frames and seals) 16m/Fi
ECONOVENT (ventilators) 20c/We
EDDY (stokers) 31J/Ed
EDEN (water closets) 27a/Ri
EDGE-GLO (lighting fixtures) 33a/Cu
EDGE-LINE (curtain walls) 3a/Ne
EDISON-HEATUBE (electic range heating elements) 26c/To
EFFECTO (enamel) 15/Pr
EFFICIENCY (waterstops) 9/Wi
EFFICO (roof ventilators) 20c/Hi
EFROLITE (shower doors) 27c/Ef
EG-SHEL (paint products) 15/Sh
EGSCO (corrugated sheets) 8b/Sm
EGSCO (curtain walls) 3a/Sm
EGSCO (curtain walls, roofing, siding) 8b/Smi
EGSCO (roof deck) 2c/Sm
EGSCO (steel forms for concrete)....2a/Sm
EL DORADO (shower doors, tub enclosures) 27c/Ef
ELASTIC (caulking, glazing, etc.) 9/Ku
ELASTICSEAL (curtain wall caulking, sealing compound) 9/Ku
ELASTIGUM (cement) 8a/Ba
ELASTIGUM (liquid asphalt coatings, cement) 9/Ba
ELASTITE (asphalt, expansion joints) ...2i/Ca
ELASTITE (flashing block) 8a/Ca
ELAYNE (lavatories) 27a/Cr
EL CAPITAN (doors) 16i/Co
ELDORADO (bidets) 27a/Ca
ELECTRIC AIRE (electric dryers) 27e/EL
ELECTRIC DOORMAN (electric door operators) 16i/EL
ELECTRIC-LUMINUS (luminous ceilings) 33a/Lum
ELECTRICTUBE (electrical metallic tubing) 32b/CL
ELECTRIFLOOR (floor decking) 2c/Fe
ELECTRO-COLOR (electrochemical process) 17a/Fen
ELECTRO-DYNAMETER (elevator controls) 24c/Se
ELECTRO-FYRE (pilot ignitor).....31b/Ja
ELECTRO-LOADER (loading platform) 24a/GL
ELECTRO PAINTLOK (steel for painting) 6c/Re
ELECTRO-SHEET (cooper foil) 8b/Am
ELECTRIC-TRAVERSE (drapery hardware) 19d/Ma
ELECTRO-WELD (kalamein doors) 16b/Du
ELECTRO-WIND (ventilators) 20c/AL
ELECTROGLIDE (freezer door tracks)..23c/Ja
ELECTROMATIC (sprinkling system valves, controls) 30e/Mu
ELECTROMODE (electric heating systems) 31h/EL
ELECTRUNITE (conduit) 32b/Re
ELECTRUNITE (stainless steel tubing) ...6c/Re
ELECTRUNITE (structural tubing) 2f/Re
ELEGANCE (incandescent lighting fixtures) 33a/Pi
ELEVETTE (elevators) 24a/In
ELGO (louvers, shutters) 20c/AL
ELK-AIR (fire extinguishers) 30f/EL
ELKALOY (fire extinguishers) 30f/EL
ELKHART (extinguishers, extinguisher cabinets) 30f/EL
ELKINGTON GATIC (covers and frames) 6i/FL
ELLISON (louvers) 20d/EL
ELTIMECO (skeleton dial cocks) 34b/EL
EMBASSY (air conditioners) 31a/Yk
EMBASSY (key index trays) 18e/Moo
EMBECO (mortar) 9/Mas
EMERSON-ELECTRIC (fans, blowers)..31e/Em
EMERSON-ELECTRIC (fans, ventilators, chimes) 25a/Em
EMERSON-PRYNE (fans, blowers) 31e/Em
EMERSON-PRYNE (fans, ventilators, chimes) 25a/Em
EMCO (wardrobes, chalkboards) 23d/Eq
EMERITEX (emery hardener) 9/Aq
EMPEROR (water closets) 27a/Bri
EMPRESS (water closets) 27a/Ri
ENAMELITE (conduit) 32b/Re
ENAMELITE (sealing, caulking compounds) 3f/Pre
ENAMELKOTE (electrical metallic tubing) 32b/CL
ENAMELOID (paint products) 15/Sh
ENDFORM (concrete forms) 2a/Ce
ENDURANCE (ceramic tile) 13c/We
ENDURANCE (house paint) 15/GLi
ENDURO (block or pipe insulation)...10c/BaL
ENDURO (stainless steel) 6c/Re; 8g/Re
ENDUROSIGN (letters, signs) 23a/Sp
ENERGY (dumbwaiters) 24a/En
ENSIGN (diswashers) 26b/In
EPCO (magnetic cabinet hardware, sliding door track) 18g/En
EPO-TOX (epoxy resin) 9/To
EPOLITH (veneer) 9/So
E-POXITE (concrete surface treatments) 9/Tre
EQUAL-AIRE (incinerators) 28a/Sar
EQUAL-FLOW (water heater systems).30c/Ru
EQUIDEPTH (column construction systems) 2g/Lay
EQUITEMP (diffusers) 31a/Am; 31a/Ame
ERAYDO (zinc alloy) 8g/IL
ERAYDO (zinc sheet) 2i/Ho
ERDALITH (wood preservatives) 5d/Ko
ERECTO-FRAMING (store fronts) 16d/Sc
ERECTOMATIC (closed shelving).....23 /St
ERICKSON (folding tables) 23i/Ha
ESCALIFT (staircase elevators) 24a/Sh
ESCO (hydraulic elevators) 24a/Es
ESKA (bleachers and grandstands)...23J/Es
ESPRO (steel tubing) 2f/Es
ESR (racks) 23c/Ea
ESSEX (locks) 18e/Sa
ESSEX (glass blocks) 3e/Pi; 7b/Pi
ESTEY (toilet tissue, dispensers) 27e/Ste
EUCALK (caulking) 9/Eu
EUCO (masonry treatment) 9/Eu
EUCO WELD (bonding agents) 9/Eu
EUREKA (metal clad fire doors) 16b/Va
EVANS (hardware, wardrobes) 23d/Ca
EVECTAIRE (range hoods—fan and light combination) 25a/Pr
EVENGLO (plastic louvers) 33a/Sin
EVER GLO (lighting fixtures) 33a/Pr
EVERBOND (mastic cement) 13J/Bru
EVERGLAZE (tile) 13c/Mos
EVERJET (paint) 8a/Ba; 9/Ba
EVERLASTIC (masonry gaskets) 4J/Wi
EVERTEX (tile) 13c/Mos
EX-TRAND CORNERITE (corner lath) 12a/Wh
EXCEL-FRAMING (glass door frames).16d/Sc
EXCELLO (pre-fabricated chalkboards).23e/Lo
EXCELON (plastic tile) 13i/Arm
EXCELSIOR (shade cloth) 19c/Jo
EXCEPTIONAL (diving boards) 23k/Ki
EXECUTIVE (food warming cabinets).26d/Foo
EXECUTIVE (partitions) 22a/Mi
EXECUTIVE (steel chairs) 23o/Ha
EXECUTIVE (telephone booths) 34a/Sh
EXECUTONE (communication systems) 34a/Ex
EXHAUST-O-VENT (fume exhaust system) 31e/En
EXHAUST/MASTER (roof ventilators)..20c/Va
EXLITE (shade cloth) 19c/Jo
EXPAND-O-FLASH (waterstrops, flashings) 8g/La
EXPAND-X (expanded metal).6e/Un; 13a/Un
EXPELSOR (pneumatic ejectors) 30a/Ye
EXPLOSION RELIEF (ventilators) 20c/Va
EXT-DFPA (plywood) 5b/Do
EXTENDO-BAR (towel bars) 27d/Ha
EXTRU-SEAL (tape) 3f/Pe

EXTRUD-A-LUME (lighting fixtures)...33a/So
EXTRUDED LOUVER (louvers, penthouses, solar canopies) 20d/Ex
EYE-COMFORT (lighting fixtures) ...33a/Cu
EYEBROW (sunshade louvers) 20d/Air
EZ-A-WAY (bleachers and chair stands) 23J/Ber
EZEGLAZE (metal glazing bead).....17b/Ho
EZY-CLEAN (rubber stairtreads) 13i/Ro
EZY-FOLD (folding door assemblies) 18g/Kn
EXY-ROLL (sliding door track) 18g/Kn

f

FA (electrical products) 32a/Ad
F & A (floor construction systems) 2a/Fa
F/C (black granite) 4a/Fr
FAB-FORM (permanent steel forms)....2a/Pi
FABCO (rubber closures) 8b/Fa
FABRICORK (bulletin boards) 23e/CL
FABRICOTE (waterproofing membrane) 8g/Wa
FABRIGLASS (lighting fixture shades) 33a/Pr
FABRIKATED (registers) 31f/In
FABROID (water barrier fabric) 9/We
FACITE (aluminum facing) 21/Hi
FACTROLITE (glass) 7a/Mi
FAIENTEX (tile) 13c/Mos
FAIRBANKS-MORSE (emergency generating sets) 32c/Fa
FAIRHURST (folding walls) 22d/Fa
FAIRHURST (wardrobes) 23d/Fa
FAIRLAWN (carpet cushions) 13L/Go
FANJET (roof cooling systems) 30e/Mu
FANTOM GRIL (fan grilles).....31e/Br
FARLODOR (flush doors) 16c/Fa
FAST-SERV (soda fountains) 26d/Ba
FAST-SET (tile adhesive) 13i/FL
FEATHER-TOUCH (exit devices) 18f/Sa
FEATHERFLEX (venetian blinds) 19d/Mo
FEDERAL (letter boxes) 23b/Cu
FEDERAL (lighting fixtures) 33a/Sm
FELTEX (roofing felt) 8a/Ca
FEMIGENE (urinals) 27a/Ri
FEN-AIR (hollow metal doors) 16b/Fe
FENACOUSTIC (acoustical plates) 2c/Fe
FENESTEEL (curtain tracks) 23g/Au
FENESTRA (aluminum windows) 17a/Fe
FENESTRA (floor, roof panels) 2c/Fe
FENESTRA (hollow metal door units)..16b/Fe
FENESTRA (wall panels) 3b/Fe
FENESTRAWALL (curtain wall systems).3a/Fe
FENLITE (metal finish) 17a/Fe
FENMARK (steel curtain wall systems).3a/Fe
FENWALL (aluminum curtain wall systems) 3a/Fe
FERA-FLOW (non-slip paint) 13b/Am
FERA-MAT (non-slip flooring) 13b/Am
FERALUN (iron treads) 13b/Am
FEREM (hardeners) 9/Ho
FERON-METALLIC (floor hardeners) 9/La
FERRICON (hardeners) 9/Tru
FERRO-BAR (masonry treatments) 9/Co
FERRO-FAX (colors, hardeners) 9/Ho
FERROBORD (steel deck) 2f/Tr
FERROCON (iron waterproofing) 9/Aq
FERROGRIT (floor plates, treads) ...13b/Wo
FERROKOTE (masonry treatments) 9/Ce
FERROLITH (grouting, hardener, colorer, dampproofing) 9/So
FERROLUX (shower cabinets) 22b/Fe
FERROMETAL (toilet, shower partitions) 22b/Fe
FERROSO G (metallic grout) 9/Tre
FERROSO W (metallic waterproofer)..9/Tre
FERROX (abrasive surfacers) 13b/Am
FESCO BOARD (roof-deck insulation) 10a/Sc
FESTOON (expanded metal) 6e/Un
FEUREX (borosilicate glass) 7a/Am
FIBER KING (mats) 13i/Ko
FIBERCOTE (insulation protection) ...10c/BaL
FIBERESIN (plastic panels) 14b/Fi
FIBERGLAS (built-up roofing) 8a/Ow
FIBERGLAS (ceiling board) 11a/Ow
FIBERGLAS (fenestration fabrics) 19d/Ow
FIBERGLAS (form board) 2d/Ow
FIBERGLAS (high and low temperature insulation) 10c/Ow
FIBERGLAS (insect screening) 19a/Ow
FIBERGLAS (polarized light panels)...33b/Ow
FIBERGLAS (roof insulation) 10a/Ow
FIBERGLAS (wall insulation) 3f/Ow
FIBERLITE (tileboard) 10a/Ins
FIBEROCK (roofing sheet) 8a/Ca
FIBERPLANK (insulating roof deck)....2d/Mat
FIBRASLATE (chalkboards) 23e/So
FIBRETONE (acoustical ceiling panels) 10a/Jo
FIBRETONE (fiber tile) 11a/Jo
FIBREX (felts, roofing cement) 8a/FL
FIBERGLASS (lighting fixture shades)..33a/Pa
FIELD-FAB (insulated curtain walls) ...3a/Sm
FIGURGRAM (electric scoreboard)....23k/Fa
FILIGRILLE (interior decorative screens, grillework) 22h/Ho
FILLMORE (locks) 18e/Sa
FILON (plastic panels) 7d/Fi
FILTER-FLO (washers) 25a/Gen
FILTER-PAK (filter/purifiers) 30d/Su
FILTEX (paint) 15/Pr
FILTRINE (coolers, filters, etc.) 30d/Fi
FILTRON (light, heat control panels) 7d/AL
FIN-VECTOR (radiation) 31a/Dun
FINE-FYBER (insulating felt) 10c/BaL
FINETEX (pattern glass) 7a/Am
FING-R-GARD (safety door edges)..16b/Ov
FIRE-CHEX (shingles) 8c/Ca
FIRE-CHEX (vapor barriers, joint fillers, adhesives) 8a/Ca
FIRE-FIGHTER (formboard) 2d/Na
FIRE GARD (acoustical plaster) 12d/Gr
FIRE GARD (thermostats) 26c/To
FIRE-SHIELD (fireproof wallboard) ..12c/Nat
FIRE-SHIELD (fireproofing plaster)...12e/Na
FIRE-SNUF (plastic panels) 7d/Re
FIRE-TROL (steel columns) 2g/LaL
FIRE VALVE (roof ventilator) 20c/Sw
FIRE VENT (roof ventilators) 20c/Va
FIREBLOCK (fire resistant panels) 7d/Ly
FIREBOX (boilers) 31a/Ame
FIRECODE (fire-resistant wallboard)..12c/Uni
FIREPROOFER (tile) 4f/Na
FIRESTOP BESTWALL (gypsum wallboard) 12c/Be
FIRESTOPPER (poured-in-place gypsum roof decks) 2d/Be
FIRM-GRIP (gratings) 13a/Bu
FIRMA (roof ventilators) 20c/Hi
FIRZITE (fillers, stains) 15/Uni
FIRZITE (plywood finish) 5b/Un
FITRITE (leader bands, snow guards, roof strainers) 8g/Le
5-STAR (bank vault entrances, depositories, depository windows) 23b/He
FIXT-AIRE (registers and grilles) 31f/Har
FLAKE KING (ice flakers) 26a/La
FLARE (lockset) 16b/Ce
FLASHTITE (flashings) 8a/Ru
FLAT DECK (fire hatches) 20c/Va
FLAT-RITE (paint products) 15/Sh
FLAT-TONE (paint products) 15/Sh
FLATSLAT (counter shutters) 16g/Cor
FLEETLITE (aluminum windows) 17a/FL; 17a/FLa
FLEETLITE (sliding glass doors) 16d/FL
FLEETWOOD (garage doors) 16i/Cra
FLEETWOOD (tellers counters) 23b/Mos
FLEETWOOD (wood doors) 25b/To
FLETCHER (granite) 4a/FL; 4a/FLe
FLEX-BAR (registers) 31f/Un
FLEX-CLIP (gypsum wallboard acoustical fastening system) 12c/Nat
FLEX-GRID (conveyor belts) 22g/Cy
FLEX-I-TRAC (curtain tracks) 23g/Au
FLEX-KRETE (masonry treatments) 9/Co
FLEX-O-BOND (rubber bond coat)....13h/FL
FLEX-WALL (interchangeable partitions) 22b/Am
FLEX-WALL (steel partitions) 22a/Am
FLEXACHROME (vinyl-asbestos floor tile) 13i/FL
FLEXALUM (aluminum awnings) 19e/Bi
FLEXALUM (venetian blinds) 19d/Br
FLEXBEAD (corner bead) 12a/Wh
FLEXBOARD (asbestos insulating sheets) 8b/Jo
FLEXBOARD (chalkboard) 23e/Go
FLEXCELL (joint fillers) 10a/Ce
FLEXGOLD (vinly-asbestos floor tile)..13i/FL
FLEXHARD (epoxy coatings) 15/So
FLEXI (steel shelving) 23f/Bo
FLEXI-BINS (bins) 23f/Bo
FLEXI-FLOR (rubber flooring) 13i/Ra
FLEXICORE (concrete slabs) 2d/FL
FLEXIDOR (rubber doors) 23c/Ja
FLEXIFLO (air diffusers) 31f/Uni
FLEXIPHONE (intercommunicating systems) 34a/Du
FLEXIMATIC AIR JET (clothes folders) 27g/Tr
FLEXIVENT (window vents) 17c/An
FLEXIVENT-FLEXIVIEW (wood windows) 17c/An
FLEXIVIEW (picture windows) 17c/An
FLEXLINK (rolling grilles) 16g/Ab
FLEXO-FOLD (folding tables, benches).23i/Sc
FLEXOTILE (flooring) 13h/FL
FLEXSTEEL (conduit system) 32b/Na
FLEXSTONE (asbestos roofing) 8a/Jo
FLEXTITE (removable window operative hardware) 18a/Gr
FLEXTOP (roofing coatings) 8a/Ca
FLEXWEAVE (vinly-asbestos floor tile).13i/FL
FLEXWOOD (veneers) 5b/Un
FLEXWOOD (wood veneers) 13k/Uni
FLINTAR (sealers) 9/FL
FLINTDEK (anti-slip coatings) 9/FL
FLINTGLAS (roofing sheets) 8a/FL
FLINTKOTE (asphalt flooring) 13i/FL
FLINTKOTE (asphalt flooring, waterproofing compounds) 9/FL
FLINTKOTE (built-up roofing) 8a/FL
FLINTKOTE (insulation products) 10a/FL
FLINTKOTE (masonry treatments) 9/FL
FLINTKOTE (roof decking) 2d/FLi
FLINTMASTIC (asphalt floor surfacing) ..9/FL
FLINTOX (hardeners) 9/To
FLINTRIDGE (aluminum windows) ...17a/Fli
FLITE-CHECK JOBMASTER (fastening tools) 2i/Ram
FLO-CONTROL (control valves) 31i/Be
FLO-FAN (fans, ventilators) 25a/Em
FLOATING CROSS (foot control mechanism) 27a/Br
FLOOD-LITE (lighting fixtures) 33a/Wh
FLOODLITER (service station lighting) 33a/Co
FLOOR-SHINE (floor wax) 13m/Hu

trade names

FLOORSTEEL (surface armor) 13a/KL
FLOR-CLEAR (toilet partitions) 22b/AL
FLOR-TREAT (floor treatments) 13m/Mu
FLORENAMEL (enamel) 15/GLi
FLORENTINE (glass) 7a/Mi
FLOREX (pattern glass) 7a/Am
FLORHIDE (enamel) 15/Pi
FLOROK (chemical hardener) 13h/Pr
FLORTEX (glazed floor tile) 13c/Ro
FLOUR CITY (windows) 17a/FLo
FLUAT (hardeners and densifiers).....9/Tre
FLUE-FED (incinerators) 28a/Sar
FLUOR-SOLAR (stainless steel fans) ..30b/FL
FLUOR-WESTERN (spiral bevel gears).30b/FL
FLUSH-METAL (hospital cubicles) 22b/FL
FLUSHART (toilet compartments) 22b/FL
FLUSHDUCT (duct systems) 32b/Na
FLUSHIELD (urinal shields) 22b/FL
FLUSHITE (toilet compartments) 22b/FL
FLUSHMETAL (toilet compartments) ...22b/FL
FLUSHOWER (shower cabinets) 22b/FL
FLUSHSCREEN (urinal shields) 22b/FL
FLUSHUNG (toilet compartments) 22b/FL
FLUSHWALHUNG (toilet compartments) 22b/FL
FLUSHWING (urinal shields) 22b/FL
FLUTEX (pattern glass) 7a/Am
FOAM FILL (air-entrained concrete)..2d/Co
FOAM-LITE (refrigerator doors) 23c/Bu; 23c/But
FOAMGLAS (cellular glass insulation)..10a/Pi
FOAMGLAS (glass) 7a/Pi
FOAMGLAS (insulation) 3e/Pit
FOLD-A-DOOR (tub enclosures) 27c/Ke
FOLD-FAST (clothes folders) 27g/Tr
FOLD-O-LEG DOUBLER (portable tables and benches) 23i/Mi
FOLDER-WAY (folding partitions) 22d/Ri
FOLDOOR (folding doors) 16e/Ho
FOLDOOR (folding partitions) 22d/Ho
FOLLANSBEE (terne) 8b/Fo
FOOD FILE (refrigerators) 26a/Ko
FORBES (roof ventilators) 20c/We
FORDHAM (toilet compartments) 22b/Cu
FORESTONE (acoustical tile) 11a/Sim
FORM-COAT (masonry treatments) 9/Co
FORM-COTE (alkali-resistant coating).13h/Pr
FORM-SAVER (plywood form coatings) 9/So
FORMCEL (concrete form coatings) 9/La
FORMFILM (form coating) 9/Ho
FORMFREE (tile) 13c/Mos
FORMICA (laminated plastic) 14a/Fo
FORMTEX (concrete form panels) 5b/Un
FORUM (lighting fixtures) 33a/Sm
FORTY-SIXTY (lighting fixtures) 33a/Cu
FOTA-LITE (lighting glass) 33b/Co
FOURCO (sheet glass) 7a/Fo
4-WAY (wood windows).....17c/Far
FRANTZ (garage doors) 16i/Fr
FREE-FLOW (vertical blinds) 19d/Ve
FRESCOR (acoustical tile) 11a/Ow
FRESNELITE (lighting fixtures) 33a/Ce
FRIARS LIGHT (church lighting) 33a/En
FRICK (air conditioning units, refrigeration equipment, compressors, etc.) 31a/Fr
FRICTEX (non-slip aggregate) 9/So
FRIGIDAIRE (kitchen equipment) 25a/Fr
FROST-AWAY (automatic defrosting).25a/Hot
FROST-CAP (vinyl roof coating) 8a/De
FROSTOP (freezer door accessories) ..23c/Ja
FRY (concrete inserts) 2i/Ho
FRY (roofing asphalt) 8a/Fr
FULITE (glass doors and frames) 16d/Sc
FULLMATIC (clothes washer controls).27g/Tr
FULLVIEW (telephone booths) 34a/Sh
FURAMIC (design service) 22a/Vi
FURLATH (lath) 12a/In
FURNAFLEX (wood veneer) 14b/Wi
FUSE-O-LINK (doors, operators) 16h/CL
FUTURA (bronze castings) 6e/Li
FUTURA (lavatories) 27a/Ri
FUTURA (letter boxes) 23b/Cu
FUTURLITER (lighting fixtures) 33a/Gu
FYER-WALL (fire doors) 16h/Ri
FYER-WARD (fire doors) 16h/Ri
FYNAL-KOTE (shingle coatings) 8d/Cr
FYR-FYTER (fire protection equipment) 30f/Fy
FYRGARD (fire doors) 16b/Ri

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G&G (ash hoists, sidewalk elevators, doors) 24d/GiL
G-B (acoustical ceiling board) 11a/Gu
G-B (curtain walls, ornamental metalwork) 3a/Ge
GB (revolving doors) 16f/Ge
GB (windows) 17a/Ge
G-B SNAP-ON (pipe insulation) 10c/Gu
G-E (coolers, fountains) 30d/Ge
G-E (kitchen equipment) 25a/Gen
G-E (laminated plastic surfacing) ...14a/Ge
GER-PAK (polyethylene film) 9/Ger
GJ (door controls) 18e/GL
G-P (hardboard panels) 14d/Geo
G-P (lumber, sheathing, siding) 8b/Ge
G-P (plywood, plywood products) 5a/Ge; 5b/Ger
G-P (wood finish) 5b/Geo
G-P RIPPLEWOOD (wood panels) ..5b/Geo
G-P STRIATED (wood panels) 5b/Geo
GR (metal partitions) 22a/Ga
GSD (glass sliding doors) 16d/GL
G-26 UNDERLAYMENT (latex floor underlayment) 13i/Cr
G-W (library equipment) 23f/GL
GALACEE (interior shutters) 19d/Pi
GALBESTOS (protected metal)..2b/Ro; 3c/Ro
GALOK (aluminum gratings) 13a/Ro
GALV-AFTER (chain link steel wire) 22g/Cy
GALV-KROM (pipe finish) 32b/St
GALVAKOTE (electrical metallic tubing) 32b/CL
GALVINOLEUM (metal coating) 15/Ru
GALVITE (conduit) 32b/Re
GALVITE (galvanized iron primer) 15/Sh
GARBAGE-HOG (incinerators) 28a/Br
GARFIELD (locks) 18e/Sa
GARNETT (church furniture) 23h/Gh
GARY (gratings, treads) 13a/Ro
GASLITE (gas lighting fixtures) 31a/Ar
GATES (concrete forming systems) 2i/Ga
GATES (waterstops) 2i/Gas
GATEWAY (building specialties) 2a/Ga; 2i/Gat
GATEWAY (electrical underfloor distribution system) 32b/Ga
GATEWAYDUCT (electrical underfloor ducts) 32b/Ga
GEARMOTOR (door operators) 16i/At
GEELOCK (crematories) 28a/KE
GEM FOAM (board or pipe insulation) 10c/BaL
GEMCO (hangers) 10a/Mo
GEMFIL (fitting or valve insulation).10c/BaL
GENAFOAM (insulation) 10a/Ge
GENERAL (plastics) 13k/Ge
GENERAL CHEF (kitchenette units) ...25b/Ge
GENERAL EXECUTIVE (refrigerators)..25b/Ge
GENEVA (steel hospital equipment).23L/Gen
GENEVA (steel kitchen equipment) 23i/Ge; 25b/Gev
GENUWOOD (plastic laminates) ...14a/Par
GEOMETILE (floor tile) 13i/Ro
GEORAMA (plastic tile) 13i/Ge
GER-PAK (polyethylene film) 9/Ger
GIANT JAMB (hinges) 18e/Mi
GIBRALTAR (flush wood doors) 16c/Ge
GIBRALTAR (shower receptors) 27c/Fi
GILCO (cranes, hoists, lifts) 24d/Gi
GIRAFFE (corrugated mats) 13i/Ar
GLAMOURLINE (commerical cooking equipment) 26c/Hot
GLAS-WICH (laminated safety glass) .7a/De
GLASIRON (porcelain enamel) 3c/Wo
GLASSEAL (glass) 7a/Li
GLASSTEEL (diffusers) 33a/Mu
GLASSTEEL (lighting fixtures) 33a/Wh
GLAZE-COAT (masonry treatments) ...9/Co
GLAZECOAT (building boards) 10a/Jo
GLAZETEX (floor wax) 9/Aq
GLID-ON (mixing liquid) 15/GLi
GLID-TILE (plastic tile finish) 15/GL
GLID-TONE (stain, varnish, wood filler) 15/GLi
GLIDE (aluminum curtain walls) 3a/Gr
GLIDE (sliding doors) 16d/GLi
GLIDE-ALL (sliding doors) 16c/Woo
GLIDE-ON (paints) 15/GLi
GLIDORAMA (gliding windows) 17a/GLi
GLO-DULL (chalkboard trim) 23e/Lo
GLOBE (fire detectors, sprinklers) ...30f/Fy
GLOBE (materials handling equipment) 24a/GL
GLOS-TONE (interior house paints)..15/Ma
GLOSS TONE (wall tile) 13c/Roy
GLOW-LITE (illuminated signs) 23a/Sp
GLOW TONE (paint) 15/Ame
GOLD BOND (asbestos-cement roofing, shingles, siding) 8c/Na
GOLD BOND (gypsum plaster) 12e/Na
GOLD BOND (gypsum roof deck) 2d/Na
GOLD BOND (insulation) 10a/Na
GOLD BOND (metal lath) 12a/Na
GOLD BOND (paint) 15/Nat
GOLD BOND (panels, roofing, siding).8b/Na
GOLD BOND (sound control products) 11a/Na
GOLD BOND (wallboard) 12c/Nat
GOLD-N-CHEF (backbars) 26d/Pr
GOLD SEAL (cork bulletin boards) ...23e/Co
GOLD SEAL (floor, wall coverings) ...13i/Co
GOLDEN DOWEL (wood doors) 16c/Ro
GOLDEN GRIDDLE (griddles) 25a/Hot
GOLDEN RUB-TEX (carpet cushion)...13L/AL
GOLDEN TONE (sandstone) 4c/Br
GOLIATH (rolling grilles) 16g/Ki
GOTHAM (lighting fixtures) 33a/Go
GOULD (curtain, drapery hardware) 19d/Go
GOURMET (refrigerators) 25a/Rev
GOVERNAIR (registers) 31f/Un
GPX (overlaid plywood) 5a/Ge; 5b/Ger
GPX (sheathing, lumber) 8b/Ge
GRADE-AID (classroom cabinets, counters, sinks) 23i/Gr
GRADE-ROBE (lockers, wardrobes) .23d/Med
GRAINBOARD (gypsum board) 12c/Nat
GRANADA (lever handles) 18e/Sc
GRANCO (steel roof deck)..2c/Gra; 2c/Grn
GRAND PRIZE (finish) 15/Un
GRAND PRIZE (finishing line) 12e/Un
GRAND PRIZE (hydrated limes) 12e/Un
GRANDVIEW (mirrors) 27d/Mi
GRANITEX (hardeners) 9/Tru
GRANITEX (tile) 13c/Mos
GRANOLITH (rubber base paint) 15/Ba

GRANT (locks) 18e/Sa
GRANUX (fabricated stone) 4d/Gra
GRAPHOLITE (chalkboards) 23e/CL
GRATE-X (metal grating) ...6e/Un; 13a/Un
GRATELITE (light control louver) 33a/Gu
GRAVITY DRAIN (automatic dish-washer) 25a/Hot
GRAYLITE (insulating board, sheathing) 2i/Ins
GRAYLITE (sheathing) 10a/Ins
GRAYLITE-INS-LITE (formboard) 2i/Ins
GRAYLITE-FIBERLITE (formboard) 2i/Ins
GREEK KEY (floor tile) 13i/Ke
GREEN SEAL (paint) 15/Ha
GREEN STREAK (corner formers) 2i/Se
GREENHAVEN (prison lavatories) 27a/Ri
GRID SYSTEM (steel grid domes) 2a/Gri
GRIDSTEEL (armor grids) 13a/Ir
GRIDTONE (ascoustical materials) ..11a/Ar
GRIDWALL (aluminum curtain walls)..3a/Gr
GRIF-HO (toilet paper holders) 22b/We
GRILL-O-METRICS (grilles) 6a/BLu
GRILLINE (grilles) 31f/Uni
GRIP-CRETE (swimming pool paint)..15/Wa
GRIP-DEK (abrasive flooring) 13i/Pa
GRIP-LOK (incinerator corners) 28a/Un
GRIP-TITE (timber framing anchors) ...2i/Ha
GRIP-TREAD (abrasive flooring) 13i/Pa
GRIPSTAY (concrete inserts) 2i/Ho
GRIPWELD (gratings, treads) 13a/Ir
GUARD (vinyl wall coverings) 13k/CoL
GUARDIAN (curing, hardening, sealing compound) 9/Gu
GUARDIAN (toilet partitions) 22b/Pri
GUEST (lavatories) 27a/Bri
GUIDE-LINED (electrical tubing) 2f/Re
GUILDSET (clay tile contractors) 13c/Ti
GUMDROP (sealers) 20a/By
GUTHLITE (lighting fixtures) 33a/Gu
GYMLIFE (gloss finish) 15/Moo
GYMSTAND (bleachers, grandstands) 23J/Wa
GYPSOLITE (gypsum plaster) 12e/Na
GYROL (fluid drives) 31a/Ame

h

HB (building construction accessories).2i/Ho
H & B (movable partitions) 22a/Ha
H & J (aluminum curtain walls) 3a/Ha
H & J (doors) 16a/Ha
H & J (metalwork) 6e/Ha
H & K (architectural grilles) 31f/Ha
HCS (heating acoustical ceiling) 11a/Jo
H-H-M (bank vaults) 23b/He
HKP (sub-purlin sections) 2d/Cor
H-P (roof ventilators) 20c/Hi
HADDAM (lockset) 16b/Ce
HADES (aluminum paint) 15/Wa
HAKO (floor tile) 13i/Hak
HAKO-SERT (tile inserts) 13i/Hak
HAKOCOVE (cove base) 13i/Hak
HALL-MACK (bathroom accessories) ..27d/Ha
HALLOWELL (school shop furniture) ..23i/St
HALO-OF-HEAT (dryers) 24a/May
HALSEY TAYLOR (coolers, drinking fountains) 30d/Ta
HAMMERED (pattern glass) 7a/Am
HAND-PAK (insulation) 10a/Pr
HANDEE ANDEE (bins) 23f/Bo
HANDI-BOOTH (telephone booths) ..34a/Su
HANDI-DRIVE (conveyors) 24d/St
HANOVER (locks) 18e/Sc
HANSOLUX (acoustical tiles) 11a/Ha
HANSONITE (acoustical tiles) 11a/Ha
HANSOPAN (metal pans) 11a/Ha
HANSOSTAR (acoustical tiles) 11a/Ha
HANSOTEX (acoustical ceiling panels) 11a/Ha
HANSOTONE (acoustical form-board, acoustical systems) 11a/Ha
HAR-BAR (parking barriers) 23p/Ha
HARCOL REDI-MIXED (concrete hardener, colorer) 9/So
HARDING (locks) 18e/Sa
HARDWEAR (floor treatments) 9/Pa
HARMONITONE (tile) 13c/Mos
HARMONY (locksets) 18e/Co
HARRIS (hardboard flooring) 13J/Har
HARTER (stack chairs) 23o/Har
HARTFORD (incinerators) 28a/Na
HASKELITE (curtain wall panels) 3e/Ha
HASKELITE (institutional doors) 16c/Has
HASKO-PREG (laminated plywood)....3e/Ha
HASKO-STRUCT (plastic foam panel cores) 3e/Ha
HATCO (electric booster heaters).....26b/Ha
HAWS (coolers, fountains, faucets) ..30d/Ha
HAWS-KRAMER (flush valves) 30d/Ha
HAZEN (rolling doors) 16g/Ha
HEADERDUCT (underfloor wiring systems) 32b/Na
HEAT-A-LITE (heaters) 25a/Nu
HEAT-A-VENT (heaters) 25a/Nu
HEAT-O-MAT (heating mats) 13i/Ar
HEAT-X (heating, cooling equipment) 31a/Du
HEATFORM (fireplace heating units) ..31L/Su
HEATMASTER (water heaters).....31g/Ko
HEATSAVER (fireplaces) 31L/Do
HELIO-THERM (triple-wall shade fabric) 19c/He
HELIX (sash balances) 18a/Ca
HERCULES (curtain machinery) 23g/Au
HERCULITE (glass doors, frames) 16d/Pi
HERCULITE (plate glass) 3e/Pit
HERCULITE (tempered glass, doors, door frames) 7a/Pi
HERITAGE (tile flooring) 13i/Wr
HERRINGBONE (metal lath) 12a/Tr
HEX 'A-HE' DRAL (septic tanks) 30h/Ka
HEX-A-LUME (lighting fixtures. 33a/So
HEX-O-LUME (lighting fixtures) 33a/Wh
HEXTEEL (surface armor) 13a/KL
HI BOY (heaters) 31b/Cam
HI-BUILD (plastic coatings) 15/Su
HI-CON (floor cleaner) 13m/In
HI-CONE (aerators) 30a/Ye
HI-DUTY (spring hinges) 18e/Chi
HI-FORM (fireplace dampers) 31L/Su
HI-GLOSS (panel finish) 14b/Ma
HI-HEAT (aluminum paint) 15/Ame
HI-HEAT (paint products) 15/Sh
HI-LIFT (garage doors) 16i/Cra
HI-LIFT (overhead door tracks) 16i/Win
HI-LINE (toilet partitions) 22b/AL
HI-LITE (acoustical plaster) 11a/Uni; 12e/Un
HI-LITE (tile and plank finish) 10a/Uni
HI-RIB (rib mats) 13i/Paw
HI-SCOOLER (water coolers) 30d/Fi
HI-SPEED (dryers) 25a/Gen
HI-STILE (toilet, shower compartments) 22b/We
HI-TEMP (chalkboards) 23e/Go
HID-N-RAIL (door closers) 18e/Co
HIDE-A-WAY (kitchen units) 25b/Ac
HIFILITE (baffles) 34a/Lo
HIGH-BAY (mercury and incandescent reflectors) 33a/Sy
HIGH-LITE (sliding windows) 17c/Ro
HIGHLANDER (washers, dryers) 25a/May
HIL-TEX (floor sealers) 13m/Hi
HILTON (urinals) 27a/Bri
HIMCO (aluminum entrances) 16a/Hi
HIMCO (store fronts) 21/Hi
HISTORIC (paint) 15/Pi
HIWALK (gratings) 13a/Pe
HOAL (louvers) 16b/Am
HOBART (kitchen machines) 26b/Ho
HOEGGER (bathroom accessories) ...27d/Ke
HOEGGERLITE (medicine cabints) ...27d/Ke
HOHMANN (clothesline poles) 2i/Ho
HOLD-FAST (shade rollers) 19c/Ri
HOLFORD (casement windows) 17b/Ho
HOLIDAY (asphalt, vinyl-asbestos floor tile) 13i/FL
HOLLOKORE (acoustical tile) 11a/Sim
HOLLYWOOD (bathroom cabinets) ..27d/Mi
HOLORIB (roof decking) 2c/Fe
HOLOSTUD (partition systems) 12a/Na; 12c/Nat
HOMASOTE (building products) 10a/Ho
HOMELIFTS (home elevators) 24a/Sh
HOMEMAKER (sinks) 27a/Cr
HONEYLITE (luminous ceiling panels).33a/He
HONEYWELL (alarm systems, panel-board controls) 34b/Mi
HONEYWELL (panelboard controls) ..31i/Mi
HOOSIER (fire extinguishers) 30f/EL
HOPKINS (combination windows) 17b/Ho
HORIFOLD (bi-folding doors) 16h/Se
HORIZON (wall systems) 22a/Hau
HORNOLITH (hardeners) 9/Ho
HORNSTONE (hardeners) 9/Ho
HOT-SERVE (food warming cabinets).26d/Foo
HOTEL/MOTEL MASTER (communicating systems) 34b/Mi
HOTKOTE (electrical metallic tubing) 32b/CL
HOT'N'COLD (water fountains) 30d/Eb
HOTPOINT (kitchen, laundry appliances) 25a/Hot
HOTPOINT CUSTOMLINE (kitchen centers) 25a/Hot
HOUSEMART (wood doors) 16c/Ro
HOUZE (glass) 7a/Ho
HOZEGARD (fire hose cabinets, reels and connections) 30f/AL
HUB CITY (shade cloth) 19c/Ri
HUBBELL (wiring devices) 32b/Hu
HUBBELLITE (terrazzo cement) 13h/Hu
HUBBELLOCK (connectors) 32b/Hu
HUETEX (spandrel and pattern glass) 3e/Ame; 7a/Am
HUEWHITE (glare reducing glass) 7a/Am
HUMID-I-MAKER (humidifiers) 31i/Ar
HUMMER (partition systems).12c/Be; 12c/Bes
HUMPHREY (gas unit heaters).....31a/Ar
HUNTINGTON (floor wax, finish) ..13m/Hu
HURUNDUM (hardeners) 9/Tru
HUSH CLIP (partition systems) 12a/Pe
HUSH-TONE (ceiling tile) 10a/Ce
HUSH-TONE (insulating coating) 13h/Pr
HYDAPIPE (showers) 27b/Sy
HYDRATITE (water repellent) 9/Ho
HYDRO-BAR (flashing) 9/Mu
HYDRO-CHECK (water-repellent coating) 15/Nat
HYDRO-DENZ (accelerators) 9/We
HYDRO-FLO (heating, cooling systems) 31i/Be
HYDRO-GLIDE (folding bleachers)....23J/Ba
HYDRO-MAGIC (door operators) 18e/Sta
HYDRO-T-METAL (zinc alloy sheet metal) 6b/Hy
HYDROSHIELD (waterproofing admixture) 9/Tre

trade names

HYDRO-TWIN (water heaters) 30c/Vi
HYDROCEL (integral water-repellents)..9/La
HYDROCIDE (masonry treatment) 9/So
HYDROFOLD (folding bleachers) 23J/Ba
HYDROGUARD (shower regulators) ..27b/Po
HYDROLIFT (folding basketball backstops) 23J/Ba
HYDROMETALS (zinc alloy sheet metal) 6b/Hy
HYDROMENT (floor treatments) 9/Up
HYDROMENT (joint fillers, ceramic tile grout) 13c/Up
HYDRONON (foundation coatings) 8a/Ba; 9/Ba
HYDROPAKE (masonry coatings) 9/Up
HYDROTHERM (gas hot water heating boilers) 31g/Hy
HYLITE (glass) 7a/Mi
HYLOPLATE (chalkboards) 23e/We
HYLOPREST (chalkboards) 23e/We

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I-BEAM (flush doors) 16c/Fa
ICL (floor finishing, maintenance products) 13m/In
ICEMAGIC (ice cube maker) 25a/Wh
IDEAL (conveyors, sterilizers, warming cabinets) 26d/Sw
IDEAL (wire connectors) 32b/Id
IDOR (aluminum sliding glass doors) 16d/Ado
ILG (ventilating equipment) 31e/IL
I-LINE (roof fans) 20c/AL
IPC (incinerators) 28a/In
IGAS (joint sealers) 9/Si
ILE-LITE (reflectors) 33a/Mu
IMPENTRA (screens) 16d/Su
IMPERIAL (air conditioners) 31a/Ai
IMPERIAL (sliding glass doors) 16d/Su
IMPERIAL (bathroom cabinets) 27d/Mi
IMPERIAL (display cases) 23e/Po
IMPERIAL (folding doors) 16e/Ne; 16e/St
IMPERIAL (freezers, ranges) 25a/Fr
IMPERIAL (furnaces) 31a/Gen
IMPERIAL (lighting fixtures) 33a/MiL
IMPERIAL (lock escutcheons) 18e/Sc
IMPERIAL (overhead doors) 16i/At
IMPERIAL (paint) 15/Un
IMPERIAL (partitions, walls) 22a/Jo
IMPERIAL VENETIAN (bathroom cabinets) 27d/Co
IMPERVITEX (waterproofing membrane) 8a/Ch
IMPERVO (paints, enamel) 15/Moo
IN-A-GROUP (showers) 27a/Br
IN-A-WALL (classroom wardrobes)....23d/Ri
IN-A-WALL (folding tables, benches).23i/Sc
IN-A-WALL (incinerators) 28a/In
IN-DOR-SEAL (weatherstripping) 19b/Ch
IN-SINK-ERATOR (garbage disposers) 25a/In
INADOR (door checks, closers).....18e/No
INCH-MARKED (conduit) 32b/Re
INCH-MARKED (electrical tubing) 2f/Re
INCINERETTE (incinerators) 28a/Am
INCLIN-ATOR (elevators) 24a/In
INDEECO (electric duct/space heaters) 31h/In
INDESTRUCT (wall fountains) 30d/Fi
INDURITE (hardeners) 9/Ce
INDUSTREX (pattern glass) 7a/Am
INDUSTRI-BOOTH (telephone booths) 34a/Su
INDUSTRIAL (lighting fixtures) 33a/MiL
INDUSTRIALIST (lighting fixtures) ...33a/Cu
INFAL (cork insulation) 10b/Re
INFRABLOCK (heat blocking ingredient) 7d/Ba
ING-RICH (porcelain enamel panels) 3c/Ing
INNER-FIN (condensers, cooling coils, water chillers) 31a/Du
INS-LITE (insulating board) ..2i/Ins; 10a/Ins
INSALUM (roof renewer) 13h/Pr
INSIDLINE (internal pipe insulation).10c/BaL
INSTAPAK (inverter power unit) 32c/On
INSTRUCTOR (lighting fixtures) 33a/Mi
INSUL-COUSTIC (insulating roof tile).2d/Fe
INSUL-FIL (insulation) 10a/Mir
INSULCAP (insulation coating) 15/GLi
INSULCOLOR (insulation finish) 10b/Ar
INSULCORE (door panels) 16e/CL
INSULITE (building insulation) 2i/Ins; 10a/Ins
INSULPRENE TWIST-LOCK (connectors) 32b/Hu
INSULROCK (roof decking) 2d/FLi
INT-DFPA (plywood) 5b/Do
INTEGRALOCK (locks) 18e/Sa
INTEGRO (treads) 13g/In
INTER-LOK (door frames) 16b/Amw
INTER-LOK (wall coping) 29a/Sti
INTERNATIONAL (industrial, aviation doors) 16h/Int
INTERNATIONAL (revolving doors) ...16f/In
INTEX (wood stains) 15/Ame
INTRAPLAST (masonry treatment).....9/Si
INVINCIBLE (fencing) 22g/Cy
INVINCIBLE (fire hose nozzles) 30f/Mc
INVISIBLE DOR-MAN (door controls) 18e/Dor
INVIZIBLE (sash balance) 18a/Gr
IPIK (wood doors) 16c/Ip
IRON-CLAD (armored flooring) 9/Mas
IRON CLAD (floor treatment) 9/Aq
IRON FIREMAN (heating equipment)..31J/Ir
IRONBOUND (wood flooring) 13J/Ro
IRONCO (grouting compounds) 9/Aq
IRONHIDE (paint) 15/Pi
IRONITE (concrete waterproofing) 9/Wet
IRONTOX (masonry treatments) 9/To
IRVICO (gratings) 13a/Ir
ISENHOUR-TAYLOR (brick) 4f/Is
ISLAND HOOD (ventilating hoods)...31e/Br
ISO-VOL (grouting cement) 9/Tru
IVORY (finishing lime) 12e/Un

J

J-M (acoustical material) 11a/Jo
J-M (asphalt-asbestos floor tile and accessories) 13i/Joh
J-M (insulating products) 10a/Jo
J-M (partitions, walls) 22a/Jo
J-M (roofing) 8a/Jo
J-M (shingles) 8c/Jo
J-M (tile floors) 13i/Jo
J-M TRANSITOP (insulating panels) 8b/Jo
JMP (hospital, laboratory equipment) 23L/Ja
JACKSON (locks) 18e/Sa
JACKSON SYSTEM (ceiling fasteners) 11b/Ha
JAL-O-VENT (louver jalousies) 17a/Sup
JAMESTOWNER (cabinet doors) 16c/Ja
JAMISON (sound reduction doors)...16m/Ja
JAMOLITE (plastic freezer doors)....23c/Ja
JANITOR (service sinks) 27a/Bri
JANITROL (heating and cooling equipment) 31b/Ja
JAPALAC (enamel) 15/GLi
JEFFERSON (locks) 18e/Sa
JENN-AIR (roof ventilators) 20c/Je
JENNITE (wood fillers) 13J/Je
JENNITE J-16 (surface sealers) 9/Ma
JET-ACOUSTIC (acoustic insulation)..10a/Ai
JET-FLO (range hood-fans) 25a/Nu
JET-SULATION (sprayed insulation) ..10a/Ai
JET-TOWER (dishwashers) 25b/Yo
JIFFY-JOIN (curtain hardware) 22c/Ji
JOANNA (shade cloth) 19c/Jo
JOANNA (vinyl wall fabrics) 13k/Jo
JOHNSON (lavatories) 27a/Bri
JOHNSONITE (rubber nosings, treads, tile guards, bases and edgings) 13i/Jon
JOISTILE (tile for joists) 4f/EL
JORD-O-MATIC (refrigerator blower coil) 26a/Jo
JUBILEE (tile flooring) 13i/Mo
JUMBO (window hardware) 18b/Wh
JUMBODUCT (underfloor raceways) ..32b/Na
JUNE-AIRE (air conditioners, furnaces, unit heaters) 31b/Am
JUNIOR (sliding glass doors) 16d/Su
JUPITOR (drinking fountains) 27a/Bri
JUST LINE (sink tops).....23L/Ju; 25b/Ju

k

K&M (asbestos-cement pipe, sheets, shingles, etc) 8c/Ke
K-LOUVER (louvered awnings) 19e/Ka
K-M (adjustable wall furring anchors) 12a/Ka
KM (crematories, destructors, incinerators) 28e/Ke
KM (fume exhaust systems) 31e/Ke
KMP (gates, partitions) 22f/Ke
KM TIDY MANN (incinerators) 28e/Ke
KSC (mats, matting) 13i/Ko
K-V (cabinet hardware) 18g/Kn
KAISERHOF (sliding glass doors) 16d/Ka
KALISTRON (plastic sheeting) 13k/Un
KALISTRON (vinyl material) 5b/Un
KALITEX (plastic sheeting) 13k/Un
KALKTITE (sealing, caulking compounds) 3f/Pre
KALMAN (concrete flooring) 13h/Ka
KALSI-KOTER (paint) 15/Nat
KALWALL (plastic building panels) ...3e/Ka
KALWALL (plastic skylights) 20b/Ka
KALWOOD (moldings) 14a/Pa
KAMKLAMP (fuseholders) 32a/Ad
KANE QUALITY (screens) 19a/Kan
KAPCORK (sealing, caulking compounds) 3f/Pre
KARIBE (carpets and rugs) 13L/Du
KARLSONITE (water conditioner) 30b/St
KARNAK (asphalt) 9/Le
KARRI-MORE (square columns) 2f/ShL
KATOLIGHT (stand-by generators) ...32c/Ka
KAUKIT (caulking compound) 9/So
KAUSTINE (sewage disposal equipment) 30h/Ka
KAWANEE (steel boilers) 31a/Ame
KAYLO (fire door cores) 16c/Bou
KAYLO (pipe insulation) 10c/Ow
KEFLEX (expansion joints) 29a/Ke
KEFLEX-KETROL (expansion joints) 29a/Ke
KEFLEX-MAVE (pipe guides) 29a/Ke
KEM-GLO (paint products) 15/Sh
KEMOX (iron compounds) 9/Si
KEMP (ceiling fastening systems) 11a/Ac
KEMPTHORNE (dust control process).11a/Sp
KEN-CLEANER (floor cleaner) 13i/Ke
KENBASE (asphalt cove base) 13i/Ke
KENCORK (cork floor, wall tile) 13i/Ke

KENCOVE (wall base) 13i/Ke
KENFAST (adhesives) 13i/Ke
KENFLEX (vinly floor tile) 13i/Ke
KENGRADE (adhesives) 13i/Ke
KENGRIP (floor wax) 13i/Ke
KENNA-RAMA (folding doors and hardware) 18d/Ke
KENNAFRAME (gliding door framing) 18d/Ke
KENNAGUIDE (wardrobe headers) ...18d/Ke
KENNALOCK (gliding door locks)....18d/Ke
KENNALOY (sound-proof, corrosion resistant steel) 18d/Ke
KENNATRACK (gliding door hardware) 18d/Ke
KENPASTE (adhesives) 13i/Ke
KENPATCH (patching) 13i/Ke
KENSERTS (tile inserts) 13i/Ke
KENSINGTON (lighting fixtures) 33a/Wh
KENSWEEP (cleaners) 13i/Ke
KENT (water closets) 27a/Ri
KENTILE (floor tile) 13i/Ke
KENWAX (floor wax) 13i/Ke
KENWOOD (locksets, lever handles) 18e/Sc
KERF (ceiling suspension systems) 11b/Do
KERFED (acoustical tile) 11b/Do
KERNER (incinerators) 28a/Mo
KERNERATOR (incinerators) 28a/Mo
KETTLE KADDY (pot filling, rinsing)...27b/Ta
KEY (shower doors and enclosures, tub enclosures) 27c/Ke
KEY-MUNICATOR (loudspeaking intercom) 34a/Str
KEY-SEAL (joint sealers) 4J/Wi
KEY-Z-BEAD (masonry reinforcing) 4h/Ke
KEYBEAD (masonry reinforcing) 4h/Ke
KEYCORNER (masonry reinforcing) 4h/Ke; 12a/Ke
KEYDECK (roofing reinforcing).2d/Ke; 12a/Ke
KEYLESS (automatic keyless lock boxes) 23b/Ke
KEYLINE (partitions) 22a/Ca
KEYMESH (masonry reinforcing) 4h/Ke; 12a/Ke
KEYSTONE (masonry reinforcing) 4h/Ke; 12a/Ke
KEYSTONE (shower doors and enclosures, tub enclosures) 27c/Ke
KEYSTRIP (masonry reinforcing) 12a/Ke
KEYWALL (masonry reinforcing) 4h/Ke; 12a/Ke
KEYWELD (masonry reinforcing) 4h/Ke
KID-PROOF (locks) 18/Sa
KIFS (mechanical bond) 2i/Ho
KIFS (rubber inserts) 2h/Bu
KIK-STEP (step ladder) 23i/Cr
KILMER (lavatories) 27a/Bri
KILNOISE (acoustic plaster) 11a/Tig
KINDORF (steel conduit clamps) 32b/St
KING (water closets) 27a/Bri
KING-TAB (asphalt shingles) 8c/Bi
KINNEAR (rolling doors) 16g/Ki
KITCHEN MAID (kitchen cabinets) ...25b/Ki
KITCHEN PRIDE (sinks) 27a/Cr
KITCHEN QUEEN (sinks) 27a/Cr
KITCHENAID (dishwashers) 26b/Ho
KLAMPSWITCHFUZ (switchboards) ..32a/Ad
KLEENEX (facial tissues, dispensers)..27e/Ki
KLEERLITE (service station doors) ...16i/Win
KLEFTONE (acoustical ceiling panels).10a/Jo
KLEFTONE (wood fiber acoustical panels) 11a/Jo
KLERESEAL (sealers) 3f/Pe
KLIMATON (windows) 17a/Tr
KLIP-LOCK (subflooring system) 13J/KL
KMP (gates, partitions) 22f/Ke
KNEE-WALL (jalousie porch enclosures) 17d/Ai
KNIGHTFRAMES (name plate frames).6f/Kni
KNIGHTPLATES (name plates).....6f/Kni
KNO-DRAFT (air diffusers) 31f/Co
KNOLLWOOD (locksets) 18e/Co
KOLDBOARD (insulating board) 10c/BaL
KOLDBOND (aluminum ceiling louvers) 33a/Co
KOLL'S PATENT (wood columns) 5c/Ha
KOLOR-BRITE (enamels) 15/Ma
KOLORPINS (nails) 18a/In
KOMPO-CITE (chalkboards) 23e/Lo
KOMPO-LUX (chalkboards) 23e/Lo
KONDUCTOKURE (curing compounds)..9/Mas
KONDUCTOWAX (floor wax) 9/Mas
KONIK (steel fencing) 22g/Con
KOOL-DOME (plastic dome skylights) 20a/Van
KOOL 'KLOSET (cooling cabinets) 26a/La
KOOLFRAME (screen frames) 19e/Re
KOOLSHADE (louvered screens) 19e/Re
KOPPERS (build-up roofing) 8a/Ko
KOPPERS (treated lumber) ...5d/Ko; 5d/Kop
KORELOCK (hollow core panels) 14b/Ma
KORK-PAK (closure strips) 2i/Se
KORINA (plywood panels) 5b/Un
KORKOLOR (asphalt, vinyl-asbestos floor tile) 13i/FL
KORKPHALT (asphalt) 9/Le
KORKRETE (concrete primers) 9/Le
KORKSEAL (asphalt) 9/Le
KOROK (chalkboards) 23e/Ko
KOROSEAL (vinyl asbestos tile) 13i/Go
KOROSEAL (vinyl coverings) 13k/Go
KORUNDUM (abrasive grits) 9/Co
KOTEX (sanitary napkins, dispensers)..27e/Ki
KOUNTERSUNK (wood blocks) 13J/Je
KOVEN (water heaters, boilers) 31g/Ko
KRALOY (plastic pipe) 29a/Kr
KREOLITE (flooring) 13J/Je
KRODEPROOF (water-repellent coatings) 9/Le
KROMIK (paint products) 15/Sh
KUBE KING (ice machines) 26a/La
KUHLCOTE (masonry treatment) 9/Ku
KUHLSEAL (masonry treatment) 9/Ku
KURASEAL (curing compound) 9/Aq
KURE-N-SEAL (floor hardeners and sealers) 9/So
KUREZ (curing compound) 9/Eu
KURLICUE (nails) 18a/In
KUROKROME (curing compounds) 9/Mas
KWIK-KLIP (batten strips) 22a/Pe
KWIK-SEAL (waterstops) 2i/Gas

L

L&B (greenhouses) 2J/Lo
LCN (door closers) 18e/La
L-M (lighting equipment) 33c/Li
L-O-F (glass) 7a/Li
L-O-F (glass doors) 16d/Lib
LNP (panelboards) 32a/Ad
LA CROSSE (cooling equipment).....26a/La
LA-X (cooling equipment) 26a/La
LAB-FLO (laboratory service fittings)..27b/Ta
LABOR-SAVER (closet fronts) 23n/Pr
LACLEDE (joists, reinforcing) 2f/La
LACROSSE (water closets) 27a/Ri
LACTIC (floor topping, grouting) 9/La
LAGSTUD (anchors) 2i/Ri
LAHOMA (bathtubs) 27a/Cr
LAL-BRO (concrete filled columns) 2g/LaL
LAMBCO (water-repellent compounds)...9/La
LAMBRITE (colored paste wax) 9/La
LAMELLA (roof system) 2e/La
LAMINALL (laminated panels) 3c/Er
LANCER (overhead doors) 16i/At
LANDON SKIM-FILTER (water skimmers and filters) 23k/La
LANIER (lavatories) 27a/Bri
LAPEER (lavatories) 27a/Ri
LAPIDOLITH (concrete hardener) 9/So
LARCHMONT (water closets) 27a/Ri
LARCO (water coolers) 30d/Ce
LARCO KOOL-PAC (water coolers) ..30d/Ce
LARSON (waterproofing) 9/Br
LASALLE (bathtubs) 27a/Bri
LASALLE (lighting fixtures) 33a/Wh
LASCOLITE (fiber glass building panels) 7d/Ly
LASCOPIPE (plastic pipe and fittings) 7d/Ly
LASTIK (concrete slabs) 2d/La
LASTILE (roofing sheet) 8a/Ca
LASTINCOTE (floor sealers) 9/Wes
LASTO-MERIC (adhesives, sealers).....3f/Tr
LATCH-TRACK (thresholds) 18f/Vo
LATHERFLO (soap dispensers) 27e/Mo
LATHURN (soap dispensers) 27d/Ar
LATHURSHELF (shelf and soap dispensers) 27e/Am
LATHURVALV (soap dispensers, valves) 27e/Am
LAUNDRAY (laundry sinks) 27a/Ri
LAUNDRITE (clothes washers) 27g/Tr
LAVAX (enamel) 15/Pi
LAWSON (medicine cabinets, metal bathroom accessories) 27d/La
LAWTON (urinals) 27a/Bri
LAYTITE (wood flooring) 13J/Co
LEAF-LITE (luminous ceilings) 33a/Lum
LEATHERWOOD (hardboard panels) 8b/Mas; 14d/Mas
LEBANEX (plywood panels) 5b/Un
LECTRO-LIFT (residential elevators)..24a/Se
LEES (carpets) 13L/Le
LEKOLITE (lighting fixtures) 33a/Ce
LEKTRO-TEKTOR (corrosion preventive) 31a/Mar
LELAND (lavatories) 27a/Ri
LEMLAR (sun control jalousies) 19e/Le
LENCOR (lavatories) 27a/Ri
LENSLITE (lighting glass) 33b/Co
LEPTYNE (paint thinner) 15/Pi
LEROY (roof ventilators) 20c/Hi
LEV-R-LATCH (door latches) 18e/So
LEVELATOR (freight lifts) 24g/Ro
LEVELCOTE (floor leveler) 13h/Ac
LEVELKOTE (roof coatings) 8a/FL
LEVELEZE (drains) 30g/Jo
LEVELIFT (freight lifts) 24a/Es
LEVELSEAL (sash locks, lifts) 18a/Gr
LEVOLOR (venetian blinds) 19d/Lo
LEX (liquid floor dressing) 9/Up
LEXINGTON (lighting fixtures) 33a/MiL
LEXSUCO (roofing products) 8a/Le
LIBERATOR (ranges) 25a/Gen
LIBERTY (roof ventilators) 20c/Pe
LIBRARY BUREAU (library furniture) ...23f/Re
LIF-T-LOX (window balance) 17c/Ro
LIFE-TIME (dry beverage cooler) 26a/Pu
LIFEBOND (floating floors) 13J/Ho
LIFETIME (aluminum building products) 3a/Re
LIFETIME (aluminum ceiling panels)..11a/Re
LIFETIME (aluminum roof deck) 8b/Ree
LIFETIME (aluminum roofing, siding).8b/Ren
LIFETIME (clay tile) 13c/Na
LIFETIME (corrugated roofing, siding) 8b/Rey; 8b/Ren

trade names

LIFETIME (penthouses for ventilators) 20d/Ame
LIFETIME (ribbed siding) 8b/Reo
LIFETIME (wood fire doors) 16c/Dus
LIFT-TABLE (hydraulic tables) 24a/GL
LIGHT SAVER (controlled lighting) ..34b/Mi
LIGHT WARDEN (emergency lighting units) 33a/EL
LIGHTNING LIFT (door operators) 16i/At
LIGHTOLIER (lighting fixtures) 33a/Lia
LIGHTSTEEL (structural sections) 2f/Pe; 12a/Pe
LIGNOPHOL (wood treatment, sealer, preservative, finish) 9/So
LIKWIDURN (soap dispensers) 27d/Ar
LIKWIDVALV (soap dispensers, valves) 27e/Am
LIMINETTE (fixtures) 33a/Ne
LIMPET (acoustical material, insulation) 10a/Ke
LINABESTOS (asbestos sheets) 8c/Ke
LINCOLN (food storing, conveying, serving units; hydraulic lifts) 26d/Li
LINCOLN (locks) 18e/Sa
LINDSAY (lavatories) 27a/Bri
LINDSAY (water softeners) 30b/Li
LINE-AIR (air diffusers) 31f/Uni
LINEFLOW (fan units) 31a/Am; 31a/Ame
LINEX (pattern glass) 7a/Am
LINGO (flagpoles) 6g/Ac
LINK (bonding agent) 9/Am
LINKPLATE (key link plates) 22a/Vi
LINOTILE (floor covering) 13i/Arm
LINOVECTOR (convectors and covers).31h/Vu
LINOVENTILATOR (heating-ventilating systems) 31h/Vu
LIPSTIK (microphones) 34a/AL
LIQUA-SHINE (floor wax) 13m/Hu
LIQUI-STEEL (plastic coating) 13h/Pr
LIQUIDFLO (soap dispensers) 27e/Mo
LITCHFIELD (locks) 18e/Sa
LITE-A-VENT (ventilators) 6e/Fi
LITE-BLOX (troffers) 33a/Gu
LITE-LIFT (unique balanced chalkboards) 23e/Un
LITE-MIX (plaster) 12c/Bes
LITE-O-LET (lighting fixtures) 33a/Wh
LITE-PANL (translucent building panels) 2J/Bu
LITECONTROL (lighting fixtures) 33a/Lie
LITECRAFT (lighting fixtures) 33a/Lin
LITEGREEN (chalkboards) 23e/Be
LITESITE (chalkboards) 23e/We
LITESTRIP (shade hardware) 19c/Ri
LITETRIM (chalkboard mouldings) ...23e/We
LITEWATE (conveyors) 24d/St
LLENROC (rolling steel fire doors) ...16g/Cor
LO BOY (heaters) 31b/Cam
LO-LIMIT (heating controls) 31h/No
LO-NOIZ-LEVEL (ventilators) 20c/AL
LO-TEMP (freezer doors and gaskets) 23c/Ja
LO-TRAN (glass) 7a/Ho
LOCK-JOINT (wood columns) 5c/Ha
LOCK'N ROLL (latches) 18e/Lo
LOCK-ON (base and clips) 12a/Bo
LOCK-RIB (waterstops) 9/Lex
LOCKERETTE (lockers) 23d/Vo
LOCKEROBE (lockers) 23d/Med
LOCKWOOD (locks, locksets) 18e/Lo
LOK-TABS (asphalt shingles) 8c/Ru
LOK-TITE (door hinges) 16b/Pi
LOK-TEX (venetian blind tape) 19d/Ea
LOK'D BAR (projected windows) 17b/Ho
LOKSAFE (kitchen cabinets) 25b/Ki
LO-LINE (self-edged counter tops) ..25b/Yo
LONDO (lavatories) 27a/Ri
LONG-LIFE (asphalt roofing products)..8a/Lo
LONG-SLOT (concrete inserts) 2i/Ho
LONGSPAN (open web steel joists) 2f/St
LORAIN (lavatories) 27a/Ri
LOSEAT (bathtubs) 27a/Ri
LOSET (boilers) 31g/Pa
LOUVENT (roof ventilators) 20c/Oc
LOUVER-FOLD (folding louver doors).16e/Co
LOUVER-VENT (skylight louvers) 20a/Van
LOUVER LINE (lighting fixtures) 33a/Pr
LOUVER-LITE (louvers, solar canopies, sun control devices, vent housings, jalousies) 19e/Lo; 20d/Lo
LOUVERALL (packaged louvered ceilings) 33a/Co
LOUVERDRAPE (vertical blinds) 19d/Ve
LOUVERLUX (louver panels) 33a/Di
LOUVREX (glass door louvers) 22a/Vi
LOUVREX (pattern glass) 7a/Am
LOW BOY (radiant heater) 31h/Ber
LOW-VANE (louvers) 19e/Lo
LOWELL (baffles, enclosures) 34a/Lo
LOWELL (lavatories) 27a/Bri
LOWELL (lighting fixtures) 33a/Wh
LOXIKORK (tackboards) 23e/Lo
LOXIT (bulletin boards, chalkboards)..23e/Lo
LOXIT (floor laying systems) 13J/Lo
LOXIT VICTORY (bulletin boards, display cases, chalkboards) 23e/Lo
LOXIT WONDER (adjustable shelving system) 23e/Lo
LOXITEX (tackboards) 23e/Lo
LOXON (paint, coatings) 15/Sh
LUMASKIN (reflective insulation) 8h/Lu
LUMI-PLASTIC (ceiling diffusers) ..33a/Lum
LUMI-VEE (steel V-moulding) 33a/Sy
LUMINAIR (lighting fixtures) 33a/En
LUMINALL (paint) 15/Na
LUMINETTE (lighting fixtures) 33a/Ne
LUMINEX (pattern glass) 7a/Am
LUMIPLEX (plastic diffusers) 33a/Lin
LUMISHADE (marquees) 19e/Ma
LUMNOX (abrasive aggregates) 9/Ce
LUPTON (air conditioning systems) ...31a/FL
LUPTON (aluminum windows) 17a/FLy
LUPTON (curtain walls) 3a/Fly
LUPTON (doors, windows) 17b/FL
LURON (soap dispensers, soap).....27e/Ty
LUSTERTONE (sinks) 25b/ELk
LUSTRAL (paint products) 15/Sh
LUSTRACRYSTAL (sheet glass) 7a/Am
LUSTRAGRAM (glare reducing glass) ..7a/Am
LUSTRAVIEW (mirrors) 27d/Mi
LUSTRAWHITE (glass) 7a/Am
LUSTRE-TRIM (custom counter tops)..25b/Yo
LUSTREWOOD (hardboard panels) 8b/Ma; 8b/Mas; 14d/Mas
LUVEX (lighting fixtures) 33a/Da
LUVR-LUMINOUS (luminous ceilings) 33a/Lum
LUXAIRE (outdoor fluorescent lighting) 33c/Pf
LUXLITE (glass) 7a/Mi
LUXSTAR (cement paint) 9/Ce
LYNN (directories, letters and signs).23a/Ly
LYON (steel lockers) 23d/Ly
LYRIC (locksets) 18e/Be
LYT-ALL (interior paint) 15/Pr
LYTELINE (lighting fixtures) 33a/Lia

m

M-DECK (long-span structural roof decks) 2c/Ma
M-FLOOR (floor decking) 2b/Mah
M & E (fire doors) 16h/Me
M-W (lighting fixtures) 33a/Mi
MA (adhesives, coatings, insulation, paints) 10a/Mir
MA (adhesives) 1a/Mir; 13c/Mir
MFMA (wood flooring) 13J/Ma
MG (glass) 7a/Mi
MRDTI (metal roof deck technical institute) 2c/Me
MS (locks, bolts) 18e/Ad
MADISON (locks) 18e/Sa
MAESTRO (paint) 15/Pi
MAGI-COTE (door treatments) 16i/Cra
MAGIC CARPET (door operators) 18e/Sta
MAGIC CIRCLE (water heaters) 25a/Hot
MAGIC DOOR (door operators) 18e/Sta
MAGIC-FOLD (folding doors) 16e/CL
MAGIC MOLE (door operators) 18e/Sta
MAGIC STAR (door operators) 18e/Sta
MAGICLEAN (glass block finish) 7b/Ow
MAGNA-LUMINUS (luminous ceilings) 33a/Lum
MAGNA-TITE (magnetic cabinet catch) 18g/En
MAGNABOND (cement bonding agent) 13i/Cr
MAGNALOCK (locks) 18e/Sa
MAGNE-GRIP (door operator) 24c/Se
MAG-PLY (concrete forms) 2i/Sy
MAIN-LINER (lighting fixtures) 33a/We
MAINLINER (office desks) 23o/Ar
MAINLINER (partitions) 22a/Mi
MAINTAINEERS (trained floor experts) 13m/Hi
MAKE-SET (accelerators) 9/La
MANHATTAN (lock escutcheons) 18e/Sc
MANHATTANITE (terrazzo dividers).13g/Ma
MANIPULATION-PROOF (locks) 18f/Sa
MANU-TOWL (paper towels, holders) 27e/Cr
MAR-FREE (cabinet door pulls) 27c/GL
MAR-NOT (paint products) 15/Sh
MARACON (water-reducing admixture) 9/Mar
MARACONCRETE (cement) 9/Mar
MARB-L-COTE (paint, cement, tape) ..15/Na
MARBELETTE (flooring materials) 13h/Ma
MARBELLA VENEZIA (marble chip wall coverings) 13c/Mu
MARBLMETAL (toilet partitions) 22b/Mi
MARCIA (lavatories) 27a/Cr
MARCOLITE (scuttles, skylights) 20a/Ma
MARIETTA MARZIAC (concrete precast building panels) 3e/Mar
MARINE CEMENT (water-repellent).....9/To
MARINE SEALER (sealer) 15/Wa
MARINITE (panels) 22a/Jo
MARK-FORE (pressure cookers) 26c/Ma
MARK-2 (shelving) 23c/Ma
MARKETTE (pressure cookers) 26c/Ma
MARKWA (marble tile) 13f/Ve
MARLEY (cooling towers) 30b/Ma
MARLITE (panels) 14b/Ma
MARS (drinking fountains) 27a/Bri
MARSH (packages trussed rafters) 2e/Ma
MARTRACK (ceiling, floor runners) ...12a/In
MARVEL-LIFT (garage doors) 16i/Cra
MARVEL-LITE (garage doors) 16i/Cra
MARVEL-LUCENT (garage doors) 16i/Cra
MASON (treads floor plates, nosings, etc.) 13b/Ame
MASONCO (safety treads) 13b/Ame
MASONITE (concrete forms) 2i/Ma
MASONITE (hardboard panels)...8b/Ma; 8b/Mas; 14b/Ma; 14d/Mas

MASTER (aluminum windows) 17a/FLy
MASTER (dishwashers) 26b/In
MASTER (furnaces) 31a/Ame
MASTER BUILDERS (concrete products).9/Mas
MASTER-BUILT (asphalt shingles) 8c/Bi
MASTER-FLUSH (wood doors) 16c/Ha
MASTER MIX (hardeners) 9/Mas
MASTERIB (rib lath) 12a/Pe
MASTERKURE (curing compounds) 9/Mas
MASTERPLATE (flooring aggregates) ..9/Mas
MASTERQUICK (resurfacers) 9/Mas
MASTIPAVE (bituminous flooring).....13i/Pa
MATH-MASTER (chalkboard graph systems) 23e/CL
MATICO (floor tile) 13i/Ma
MATICORK (asphalt, vinyl-asbestos floor tile) 13i/Ma
MATICOVE (cove base) 13i/Ma
MATTE BEADEX (pattern glass) 7a/Am
MAXIM-AIR (detention windows) 17b/Tr
MAYSTEEL (hospital cabinets and casework) 23L/May
McINTIRE (automatic shutter-sliding pole unit) 30f/Mc
McKEE (overhead doors, operators) 16i/Mc
McKINLEY (abrasive castings) 13b/Mc
McKINLEY (construction castings).....6i/Mc
McKINLEY (grilles, ventilators) 20d/Mc
McKINLEY (locks) 18e/Sa
McKINLEY (ornamental designs).....6e/Mc
McKINLEY (sun control and metal products) 19e/Mc
McPHILBEN (lighting fixtures) 33a/Mc
McSHANE (bells and chimes) 23h/Mc
MECCO (rolling doors) 16g/Mo
MEDALLION (bathtubs) 27a/Bri
MEDALLION (desks) 22a/Co
MEDALLION (hollow metal doors)...16b/Ce
MEDART (gym seats, backstops).....23J/Me
MEDCO (construction specialties) 2i/Me
MEDCO-WALL (masonry wall reinforcing) 2i/Me; 4h/Me
MEDI-PREP (medicine stations) 23L/Ma
MEDLEY (tile) 13c/Mos
MELLOTONE (tile) 13c/Mos
MELODY (locksets) 18e/Co
MELT-O-MAT (snow melting mats)....13i/Ar
MEND-A-FLOOR (cement) 13h/Ac
MENGEL "700" (doors) 16c/Me
MERCHANT (lighting fixtures) 33a/MiL
MERCURY (drinking fountains) 27a/Bri
MERCURY (locks) 18e/Sc
MEREDITH (lavatories) 27a/Bri
MERRY-GO-ROUND (kitchen cabinets) 23i/Ge; 25b/Gev
MESHTEX (diamond lath) 12a/Pe
MET-CRO (bridging) 2i/Ho
MET-L-VIN (vinyl-metal laminate) ...14a/Me
MET-L-WOOD (metal faced plywood).14a/Me
METAL-ROK (metallic pore sealer)....13h/Pr
METALASTIC (paint products) 15/Sh
METALEAF (paint) 15/Pi
METALICRON (floor treatments) 9/Mas
METALOID (masonry treatments) 9/Co
METALOX (admixtures) 9/Ce
METALSITE (chalkboards) 23e/We
METALSIUM (metallic hardeners) 9/Ce
METEOR (drinking fountains) 27a/Bri
METL-CAP (vent pipe fittings) 31f/Har
METLVENT (vent pipe and fittings)..31f/Har
METLWAL, JR. (partitions) 22a/Vi
METPAR (metal partitions) 22b/Me
METRO-MIX (poured-in-place gypsum) 2d/Be
METRODECK (floor, roof deck) 2c/Go
MI-T-LITE (service station lighting) ..33a/Co
MIA (marble) 13f/Ma
MIAMI (aluminum windows) 17a/Mi
MIAMI (autopsy tables) 23L/Ma
MIAMI (sinks) 27a/Bri
MIAMI-CAREY (bathroom cabinets, acessories) 27d/Mi
MIAMI CAREY (steel access doors)....16J/Mi
MIAMI-CAREY (ventilators, fans) 31e/Mi
MICRO (elevator controls) 24a/Ot
MICRO-FLOW (valves) 29a/Kr
MICRO-METER (valves) 29a/Kr
MICROFIL (water-repellent coating)..15/Nat
MICROLITE (blanket insulation).....10c/La
MICROLITE (fiber glass blankets) 11a/Jo
MICROMIST (burners) 31J/Ir
MICROROLD (stainless steel) 6c/Wa
MICROTEX (duct liners) 10c/La
MIDAL (lavatories) 27a/Ri
MIDGET (louvers) 2i/Ho
MIDGET (slat closures) 16g/WiL
MIDGET (steel enclosures) 16g/WiL
MIDGET (towel cabinets) 27e/St
MIDLINER (towel dispensers) 27e/St
MIKADO (incandescent lighting fixture) 33a/Pi
MILCOR (acoustical roof deck) 11a/In
MILCOR (lath) 12a/In
MILCOR (roof decks) 2c/InL
MILCOR (steel access doors) 16J/In
MILCOR (steel base) 2a/In
MILCOR (steel floor panels) 2b/In
MILCOR (wall panels) 3b/In
MILLBROCK (locks) 18e/Sa
MILLER (lighting fixtures) 33a/MiL
MILMARK (adhesives, waxes) 13i/Hak
MILNOR (washers, extractors) 27g/Pe
MILTON (lavatories) 27a/Bri
MILTROL (washer timer) 27g/Pe
MIN-X (expanded metal) 6e/Un
MINABORD (acoustical materials) ...11a/Ar
MINALITH (treated lumber) 5d/Ko
MINATONE (acoustical materials) ...11a/Ar
MINATONE (fireproof formboard) 2d/Ar
MINUTE MAN (extractors, tumblers).27g/Tr
MINWAX (masonry treatments) 9/Mi
MINWAX (wood finishes) 15/Min
MIRACLE (adhesives) 10a/Mir; 13c/Mir
MIRACLE (chalkboard-tackboard setting system) 23e/Lo
MIRACLE WEDGE (overhead doors) .16i/Ove
MIRACOIL (porcelain enamel facings) 3c/Mi; 6d/Mi
MIRADHESIVE (curtain wall adhesive) 3c/Mi; 6d/Mi
MIRAFLEX (flexible porcelain enameled panels) 3c/Mi; 6d/Mi
MIRAKOTE (curtain wall primer) 3c/Mi; 6d/Mi
MIRALASTIC (curtain wall caulking compounds) 3c/Mi; 6d/Mi
MIRAMASTIC (curtain wall adhesive) 3c/Mi; 6d/Mi
MIRAMOLD (aluminum mouldings) 3c/Mi; 6d/Mi
MIRASPAN (curtain wall panels).....3c/Mi
MIRAWAL (porcelain-enameled panels) 3c/Mi; 6d/Mi
MIRAWAL PORCELOX (porcelain steel chalkboards) 23e/Lo
MIROFLECTOR (reflectors) 33a/Ge
MIRRO-GLIDE (bathroom cabinets)..27d/Ha
MIRRO-SLIDE (bathroom cabinets)....27d/Ha
MIRRO-TUF (wood floor finish) 13J/Mo
MIRROPANE (mirrors) 7a/Li
MISCO (glass) 7a/Mi
MISTY-WALNUT (hardboard panels) 8b/Mas; 14d/Mas
MITCO (grating) 31f/He
MIX-EX (paint) 15/Ma
MIX-EZE (cement dispersing agent) ...13h/Pr
MIX-OR-MATCH (ceramic wall tile)..13a/CL
MIXCRETE (hardeners) 9/Pa
MIXOMETER (shower fixtures) 27b/Sp
ML LOUVRES (louvered ceiling, lighting fixtures) 33a/Ne
MO-SAI (fabricated stone) 4d/Mos
MOBIL-FIRE WALL (fire retardant partitions) 22a/Vi
MOBIL-LAB-WALL (laboratory partitions) 22a/Vi
MOBILE FOOD FILE (refrigerators) ..26a/Ko
MOBILE-MAID (dish-washer) 25a/Gen
MOBILAIRE (air conditioners).....25a/We
MOBILEX (lighting fixtures) 33a/Da
MOBILRAIL (movable rails) 22a/Vi
MOBILSCREEN (movable screens) 22a/Vi
MOBILWALL (interchangeable partitions) 22a/Vi
MOBILWALL, JR. (partitions) 22a/Vi
MODERN AIR (furnaces) 31a/Ame
MODERN-COTE (wall coverings) 13k/Ne
MODERNE (mail chutes) 23b/Cu
MODERNFOLD (doors) 16L/Ai
MODERNFOLD (folding doors) 16e/Ne; 22d/Ne
MODERNWOOD (flooring) 13J/Ci
MODU-WALL (aluminum curtain walls) 3a/ML
MODULAR (commercial cooking equipment) 26c/Hot
MODULAR MULTI-UNITS (chalkboard, corkboard, displayboard units) 23e/We
MODULAR STRIALUX (lighting fixtures) 33a/Lia
MODULITE (plastic diffusers) 33a/Lin
MODUR (fabricated stone).....4d/Mod
MODU-LUMINUS (luminous ceilings) 33a/Lum
MODULUX (vinyl diffusers) 33a/Di
MODUWALL (wall equipment) 23e/Br
MOGUL (downlights) 33a/Ra
MOHAWK (lighting fixtures) 33a/Sy
MOISTURE-MATIC (sprinkling system controls 30e/Mu
MOISTURE MINDER (dryers) 25a/Wh
MOLTEX (toilet seats) 27a/Chu
MOMENT CONTOUR (beams, girders) 2f/ShL
MON-O-MIXER (plumbing valves) 27b/Sy
MON-U-MENTAL (awning windows)..17a/Sup
MONARCH (clay tile) 13c/Mo
MONARCH (downlights) 33a/Ra
MONARCH (folding doors) 16e/St
MONARCH (house paints) 15/Ma
MONARCH WALL (porcelain enamel veneer panels) 3c/Da
MONCO (asphalt) 8a/Ca
MONITOR (lighting fixtures) 33a/Sm
MONITOR (skylights) 20a/Ma
MONO-BLOCK (block insulation) 10c/BaL
MONO-KOVER (block insulation) 10c/BaL
MONO-LASTO-MERIC (liquid sealant)..3f/Tr
MONO-VANE (pumps) 30a/Au
MONOFLO (fittings) 31i/Be
MONOLINE (single-line partition) 22a/Vi
MONOPANL (insulated wall panels) 2J/Bu; 8b/Bu

trade names

MONOPLAST (insulation finish) 10b/Ar
MONOSEAL (glass block screen insert) 7b/Ow
MONOTUBE (light and sign poles) ...33c/Un
MONOTUBE (steel piles) 1b/Un
MONOVENT (roof ventilators) 20c/Bu
MONOXIVENT (fume exhaust systems) 31e/Ke
MONOXO-FLEX (neoprene hose adaptors) 31e/Ke
MONRO SYSTEM (waterproofing) 9/Mu
MONSANO (wood preservatives) ...5d/Mo
MONTECITO (ventilating hoods) 31e/Tr
MONTEREY (kitchens) 25b/Yo
MONTEREY (shower receptors) 27c/Fi
MONTGOMERY (elevator equipment) 24a/Mon
MONUMEN-TILT (double hung aluminum windows) 17a/FL
MOONGLOW (plastic tile) 13i/Vi
MOORE (lavatories) 27a/Bri
MOORE (paints, enamels) 15/Moo
MOORGARD (house paint).....15/Moo
MOORWHITE (paints, enamels) 15/Moo
MORFLEK (primers) 15/Moo
MORFLEX (primers) 15/Moo
MORTA-MIX (water-reducing admixture) 9/Tre
MORTAR-TITE (mortar admixtures) 9/La
MORTARON (mortars) 9/Aq
MORTASEAL (masonry lime) 4i/Un
MORTITE (concrete curings) 9/Tru
MOSAIC (tile) 13c/Mos
MOTIF'D ACOUSTONE (acoustical tile) 11a/Uni
MOTO-FOLDER (operators for bleachers) 23J/Ho
MOTORDOR (wall fans) 31e/Br
MOTORSTAIR (moving stairways) ..24a/Pee
MOTOR-VATOR (gym seat operators) 23J/Me
MOULCORK (tile flooring) 13i/Mo
MOULCOVE (cove base) 13i/Mo
MOULFLEX (tile flooring) 13i/Mo
MOULTILE (tile flooring) 13i/Mo
MOUNT AIRY (granite) 4a/No
MOVA-WALL (partitions) 22a/He
MUELLERMIST (lawn sprinkler systems) 30e/Mu
MUESSCO (pipe line strainers)....29a/Mue
MUFFLETONE (mineral ceiling panel) 11a/Ce
MULSAMASTIC (mastic flooring).....9/Tr
MULTI (lighting fixtures) 33a/Mu
MULTI-AONE (air conditioners) 31a/We
MULTI-CLEAN (floor treatments) 13m/Mu
MULTI-COIL (water heaters) 30c/Ru
MULTI-COLOR (paints) 15/Sh
MULTI FIN (water heaters) 30c/Ru
MULTI-FLEX (grilles, registers) 31f/Un
MULTI-FLOW (grilles, registers) 31f/Un
MULTI-LEAF (chalkboards) 23e/Go
MULTI-PUNCH (display boards) 23e/CL
MULTI-SHINGLE (asphalt shingles) 8a/Ba
MULTI-SLIDE (glass door units).....16d/Ar
MULTI-STOP (window shade rollers) ..19c/Jo
MULTI-THERMEX (heat exchangers)...31b/Ja
MULTI-TIER (library bookstacks) 23f/Am
MULTI-USE (easel boards) 23e/Uni
MULTI-V (folding doors) 16e/Ho
MULTI-X (folding doors) 16e/Ho
MULTI-ZONE (air conditioning) 31a/Mar
MULTITEMP (commercial, industrial gas hot water heating boilers) 31g/Hy
MULTITHERM (air conditioning units).31a/CL
MULTITROL (sprinkler system) 30e/Gr
MULTIZONE (air conditioners) 31a/Du
MUNCHHAUSEN (soundproof doors) 16m/Mu
MUNOLITHIC (cement waterproofing)..9/Mu
MUNRO SYSTEM (waterproofing) 9/Mu
MURALEX (pattern glass) 7a/Am
MURALS (decorative wall coverings).13c/Mu
MUREX (masonry cleaner) 9/Eu
MUSI-TALK (public address systems)...34a/Fa
MUSIC BY MUZAK (planned music service) 34a/Mu
MUZAK (scientifically planned background music) 34a/Mu
MYSTIC (locks) 18e/Sa

n

NCP (shingles) 8c/Jo
NAIL-DOWN (steel tile) 2f/Bet
NAIL-TITE (channel system) 11a/Na
NAILCRETE (cant strips) 8a/Ko
NAILFILL (nailing concrete) 2d/Po
NAILON (brick siding) 8f/Lu; 13c/Lu
NAIRN (floor, wall coverings) 13i/Co
NAIRON (plastic floor covering) 13i/Co
NAIRONTOP (counter, sink tops) 13i/Co
NAISCO (flagpoles) 6g/No
NASSAU LINE (bathroom accessories) 27d/Ke
NATCO (clay products) 4f/Na
NATIONAL (commercial disposers)..26b/Na
NATIONAL (garage ventilation).....31e/Na
NATIONAL (sliding door hardware) ..18d/Nat
NATURALITE (plastic skylights) 20a/Na
NAUTILUS (range hoods) 25a/MaJ
NAVAL (flush valves) 27b/SL
NEATAGEAR (remote controls for windows) 18b/Te
NEATSNAP (chalkboard trim) 23e/Ne
NELCO (x-ray protective materials)...22e/Ne
NEO-DRY (concrete floor treatments) 13m/Mu
NEO-FLECK (enamel) 15/Un
NEO-SEAL (joint sealers) 4J/Wi
NEO-SHINE (floor wax) 13m/Hu
NEOTEX (flooring) 13i/Cr
NEOTEX (matting) 13i/Ar
NERVA-KOTE (adhesive) 8g/Ru
NERVA-PLAST (setting cement) 8g/Ru
NERVASTRAL (waterproofing sheets)..8g/Ru
NERVASTRAL J. F. (joint fillers).....8g/Ru
NERVASTRAL P. E. T. (plastic film)...8g/Ru
NERVASTRAL RIGID (waterproofing sheets) 8g/Ru
NERVASTRAL SEAL-PRUF H-D (waterproofing) 8g/Ru
NERVATAPE (plastic tape) 8g/Ru
NEUDAY (baths, water closets, lavatories) 27a/Cr
NEU-SANIX (water closets) 27a/Cr
NEU-STAIN (wood stains) 15/Ma
NEU-TONE (enamels) 15/Ma
NEUTONE (floor treatments) 13m/Hi
NEUVOGUE (bathtubs) 27a/Cr
NEV-A-RUST (paints) 15/GLi
NEVAMAR (decorative laminates) ..14a/Na
NEW DEAN (lighting fixtures) 33a/Cu
NEW EASE (bathtubs) 27a/Ri
NEW ERA (paints) 15/Ac
NEW LONDONER (flush and folding doors) 16c/Cu
NEW YORK (dissecting tables) 23L/Ma
NEWARK (sink cabinets) 27a/Bri
NEWART (locksets, lever handles) 18e/Sc
NEWMAN (bronze entrances) 16a/Ne
NEWPORT (ventilating hoods) 31e/Tr
NIBROC (towel cabinets) 27e/Bro
NICALUN (nickel treads) 13b/Am
NIK-O-LOK (coin-operated locks)...22b/Nik
NO DIAGNAL VERTICAL MEMBER (longspan joists) 2f/ShL
NO-DRAFT (window sills) 17a/Fe
NO-DUCT HOOD (range hoods) ...25a/MaJ
NO-FROST (refrigerator freezers) 25a/Wh
NO-GEAR (potato peelers) 26b/BL
NO-LITE (grilles) 31f/Yo
NO-METAL-SHOW (fixture holders) ...33a/Pi
NO-SCRUB (plastic flooring) 13i/Goo
NO-SHOK (safety electrical outlets).32b/Be
NO-SITE (grille core) 31f/Wa
NO-SITE (grilles) 31f/Yo
NO-TRAX (floor mats) 13i/Su
NO-VENT (dryers) 25a/May
NO-VISION (grilles) 31f/Yo
NO-WARP (wood doors) 16c/Hy
NOBLE (toilet bowls) 27a/Bri
NOCRETE (fibre conduits) 32b/Or
NOFMA (wood flooring) 13J/Na
NOISE-LOCK (sound proof panels and rooms) 11c/In
NOISE-STOP (acoustical baffles) 11a/Ow
NON-CLIMBABLE (fencing) 22g/Cy
NON-FLEX (grilles, registers) 31f/Un
NORFE (tub enclosures) 27c/Ef
NORMAN (casement windows) 17b/Fe
NORMAN (heating, ventilating systems) 31h/No
NORMAN (steel windows) 17b/Cr
NORMANDIE (toilet, shower compartments) 22b/Sa
NORTH AMERICAN (cement) 4i/No
NORTHERN LIGHTS (wood stain) 15/Ca
NORTON (door checks, closers) 18e/No
NORTON (overhead electric door operators) 18e/Nor
NORWALK (door closers) 18e/Now
NORWICH (lavatories) 27a/Cr
NOTIFIER (fire protection systems) ...34a/No
NOVACRETE (masonry point) 8d/No
NOVAFILL (masonry treatments) 8d/No
NOVAFOLD (folding doors, room dividers) 8d/No
NOVAGRADE (shakes) 8d/No
NOVALASTIC (joint fillers) 8d/No
NOVAMIX (admixtures) 8d/No
NOVAPLY (plywood) 5b/Un
NOVAPRIME (caulking compounds) ...8d/No
NOVAPROOFING (masonry treatments) 8d/No
NOVASEP (nylon anchors) 8d/No
NOVATREZ (terrazzo flooring) 13i/Se
NOVO (locks, lock escutcheons).....18e/Sc
NOVOPLY (surfacing process) 14a/Jo
NOVOWALL (partition face material) 22a/Uni
NOXIDE (metal paint) 15/Pr
NU-COTE (floor finish) 13m/In
NU-FLEX (exhaust hose) 30e/Ca
NU-GRAIN (asbestos shingles) 8c/Ke
NU-HUE (paints) 15/Ma
NU JAMB (hinges) 18e/Mi
NU-PON (primer) 15/GLi
NU-SIMPLON (porcelain steel chalkboards) 23e/Lo
NU-STATIC (asphalt) 8a/FL
NU-STEEL (overhead doors) 16i/Co
NU-STRIP (lighting fixtures) 33a/WiL
NU-TRED (rubber matting) 13i/Ar
NU-VICTORY (porcelain steel chalkboards) 23e/Lo
NU-WOOD (tile, insulating board) 10a/Woo; 11a/Wor

NUCA-SEAL (fabric coating process).16e/Ne
NUCITE (chalkboards) 23e/Ne
NO. 25 ZINC CHROMATE PRIMER (metal primer) 15/Pr
NURITE (crayon board) 23e/Ne
NUTONE (fans, door chimes, heaters) 25a/Nu
NYCO (chalkboards) .....23e Ne
NYSTEEL (chalkboards) 23e/Ne

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OBW (ornamental metalwork, letters, plaques, etc.) 6f/Or
O-I (glass blocks) 7b/Ow
O.M. (mortar finishes) 9/Mas
O-T (steel joists) 2f/Tr
OAK-PLY (laminated oak block flooring) 5b/PL
OAKBLOK (wood flooring) 13J/Fa
OAKITE (phosphate undercoat) 23d/Pe
OAKPLANK (wood flooring) 13J/Fa
OAKSTRIP (wood flooring) 13J/Fa
OASIS (water coolers) 30d/Eb
OCON (plasticizer) 9/Aq
OCTAGON (roof ventilators) 20c/Oc
OHIO (bathtubs) 27a/Cr
OILDRAULIC (hydraulic elevators) ...24a/Ro
OILIFT (loading platform) 24a/GL
OKENE (wood preservatives) 15/Pr
OLD STYLE PITCH (pitch) 8a/Ko
OLD VIRGINIA WHITE (paint) 15/Ca
OLIN (aluminum) 6a/OL
OLSEN (lath clips) 12c/Bes
OLSONITE (toilet seats) 27a/Sw
OLYMPIC (bathtubs) 27a/Cr
OLYMPIC (extractors) 27g/Tr
OMARK DRIVE-IT (fastening tools)....2i/Om
OMARK-GRAHAM (stud welding system) 2i/Om
OMEGA (bathtubs) 27a/Cr
OMICRON (mortar finishes) 9/Mas
OMNI (space-maker system) 23c/St
ONE-CHECK SYSTEM (checking system) 23d/Vo
ONEX-SEAL (floor treatments) 13m/Hi
ONEXIT (marble floor treatments)....13m/Hi
ONLIWON (bathroom accessories) ..27e/Aa
OPALUX (lighting fixtures) 33a/Lia
OPERA CRYSTAL (lighting fixtures)...33a/Lia
ORANGEBURG (fibre conduits) 32b/Or
ORANGEBURG (pipe, pipe fittings) ..29a/Or
ORANGEBURG (underfloor duct system) 32b/Ora
ORIENTAL (finishing plaster) 12e/Un
ORLYT (greenhouses) 2J/Lo
ORTON (water closets) 27a/Ri
OUT-DOOR (incinerator) 28a/Oh
OUT-DOR-SEAL (weatherstripping) ...19b/Ch
OVERBROOK (toilet compartments)..22b/Cu
OVERDOOR (overhead doors) 16i/Ov
OVERHEAD (garage doors) 16i/Ove
OVERLINE (hollow metal doors) 16b/Ov
OVERLY (coping, roofing) 8b/Ov
OVERLY-GOODWIN (batten type roofing) 8b/Ov
OXFORD (water closets, lavatories)...27a/Cr
OZITE (carpet cushions) 13L/Am

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P&L (paint, stains) 15/Pr
PC (cement, insulation, etc.) 10a/Pi
PC (glass blocks) 3e/Pi; 7b/Pi
PDA (cement dispersing agent) 9/Au
P.E.A. (architectural panels) 3c/Ma
PF (glass fiber insulation) ...3f/Ow; 10c/Ow
PG (panel grids) 29a/Am
P-H (refrigerators, freezers, coolers)..26a/Pu
P & H (stand-by generators) 32c/Ha
PHI (panic exit devices) 18f/Pr
P&K (outdoor lighting equipment)....33c/Pf
PPG (door hardware) 18e/Pi
PPG (glass doors) 16d/Pi
PPG (store fronts) 21/Pi
PRC (caulking compounds, sealers)...3f/Pro
PVC (polyvinylchloride waterstops) 9/Lex
PWG (skylights) 7a/Pe
P & W (hardeners) 9/St
PACE-SETTER (office desks) ..23b/Art; 23o/Ar
PACEMAKER (overhead doors) 16i/Mc
PACEMAKER (sinks) 25b/ELk
PACIFIC (boilers) 31g/Pa
PACKAGE (entrances) 16L/Am
PACKEX (ejectors) 30a/Ye
PAGEMASTER (paging systems) 34a/Str
PAINT WITH LIGHT (lighting fixtures).33a/Ce
PAINTGRIP (steel sheets for painting).6c/Ar
PAINTLOK (electro-galvanized sheets) .6c/Re
PAL (paint) 15/Nat
PALCO (redwood) 5a/Pa
PAN FILE (refrigerators) 26a/Ko
PAN-L-TITE (joint sealers) 3e/Mar
PAN-L-WALL (prefabricated panels) 2d/Ame
PAN-O-RAMIC (ceramic mosaic tile) ..13c/Am
PANATONE (acoustical panels) 11a/Ba
PANAVIEW (sliding aluminum windows) 17a/Pa
PANAVIEW (sliding doors) 16d/GLi
PANCAKE (overfloor duct systems)...32b/Wi
PANEL-LAP (skylights) 20b/Fi
PANEL-MATIC (movable walls, partitions) 22a/Pan
PANEL-TEX (tile) 11a/Wor
PANEL-TILE (insulating panel tiles) ..10a/Uni
PANEL-VENT (glass block vent) 7b/Ow
PANELBOARD (hardboard panels)..14d/Geo
PANELCLIP (shake panel clips) 8d/No
PANELCORK (cork-faced paneling) ...13i/Do
PANELCOUSTIC (acoustical panels)...11a/Na
PANELFOLD (sliding wood doors) 16e/Pa
PANELGLAS (fiber glass acoustical panels) 11a/Jo
PANELGROOVE (hardboard panels) 8b/Ma; 8b/Mas; 14d/Mas
PANELHITE (toilet compartments) 22b/FL
PANELITE (curtain walls) 17b/Ce
PANELMETAL (toilet compartments) ...22b/FL
PANELOK (hardboard panels) 8b/Mas; 14d/Mas
PANELOUVRE (ventilating louvers)...20d/Ve
PANELPLANK (hardwood plywood paneling) 5b/PL
PANELSTONE (asbestos panels) 8c/Ru
PANELWALL (cermanic veneer curtain walls) 4e/Ar
PANELWOOD (hardboard panels) 8b/Mas; 14b/Ma; 14d/Mas
PANELYTE (plastic panels) 14a/Pa
PANL-FRAME (steel buildings) 2J/Bu
PANTHEON (locks) 18e/Sc
PAPR-LOK (cavity wall cover) 2i/Ho
PAQUA (paints, enamels) 15/Moo
PAR-PLUS (hardeners) 9/Pa
PARA-LATERAL (sealers) 2i/Se
PARA-PLASTIC (asphalt joint sealers) ..2i/Se
PARA-PLASTIC JF (sealing compounds) 2i/Se
PARA-VENT (ventilators) 20b/Fi
PARAFLO (space heaters) 31c/Dr
PARAFLO (troffers) 33a/Da
PARAGON (chalkboards) 23e/Ne
PARAGON (projected aluminum windows) 17a/Per
PARAGON (time switches) 32a/Pa
PARALLEL-O-GRAY (glass) 7a/Li
PARALLEL-O-PLATE (plate glass) 7a/Li
PARALOUVER (lighting louvers) 33a/Da
PARALUM (abrasive) 9/Pa
PARALUM (bathroom accessories) ...27d/Pa
PARAWING (lighting fixtures) 33a/Da
PARCO (floor finishes) 9/Pa
PARCO (link mats) 13i/Paw
PARCOLITH (hardeners) 9/Pa
PARCONITE (bonding agents, adhesives) 9/Pa
PARCO-SEAL (sealers) 9/Pa
PARCOTEX (sealers) 9/Pa
PARCRETE (asphalt emulsion) 9/Pa
PARCURE (curing compounds) 9/Pa
PAREM (floor treatment) 9/Pa
PARFLEX (extruded caulking compounds) 3f/Pa
PARISIENNE (plastic floor tile) 13i/Bo
PARK AVENUE (medicine cabinets) ..27d/Ke
PARKAY (flooring) 13J/Wo
PARKFLEX (plastic laminates) 14a/Par
PARKPANEL (plastic laminates) 14a/Par
PARKWALL (plastic laminates) 14a/Par
PARLON (rubber paint) 15/GLi
PARMASTIC (sealing compounds).....3f/Pa
PARQUETRY (cork floor tile) 13i/Ma
PARRA-SEAL (masonry treatments) 9/Co
PARTITION-LOK (masonry reinforcement) 4h/Aa
PASTELS OF PARIS (floor tile).....13i/Ro
PATHFINDER (air conditioners) 31a/Yk
PATHFINDER (lighting fixtures) 6e/Fi
PATIO MAGIC (sliding glass doors)..16d/Da
PATIO-RAMA (sliding glass doors)...16d/Da
PATRICIAN (ventilating hoods) 31e/Tr
PAVE (floor and wall terrazzo tile) 13g/Bo
PAVISEAL (sealers) 13i/Has
PEAK-TEMP (oil heaters) 31g/CL
PEARLTONE (vinyl floor tile) 13i/Do
PEBBLEX (pattern glass) 7a/Am
PECORA (building products) 3f/Pe
PEEL-KILL (wood primer) 15/Ame
PEEL-PROOF (house paints) 15/Ame
PEELLE (hangar doors) 16h/Pe
PEELLE (moving stairways) 24a/Pee
PEELLE (nuclear doors) 16m/Pee
PEELLE (pass windows, conveyor doors) 26d/Pe
PEER (soap dispensers) 27e/Mo
PEERLESS (corkboards, map, display rails) 23e/Be
PEERLESS (window cleaner's safety devices) 22b/Pri
PEERLESS ELECTRIC (fans and blowers) 31e/Pe
PEERLITE (lighting fixtures) 33a/Gu
PEG-BOARD (perforated panels)..8b/Ma; 8b/Mas; 14b/Ma; 14d/Mas
PELLA (folding doors) 16e/Ro
PELLA (wood windows) 17c/RoL
PEM (masonry treatments) 9/St
PEN-PLANK (plywood) 5b/Sp
PENCO (lockers, cabinets, shelving) ..23d/Pe
PENDANT (bathtubs) 27a/Bri
PENETREM (floor sealer) 9/Tr
PENETREX (finish) 15/GLi
PENGLASS (roof ventilators) 7a/Pe
PENMETAL (channels, casings) 12a/Pe

trade names

PENMETAL (gratings) 13a/Pe
PENMETAL (movable partitions) 22a/Pe
PENMETAL (structural sections) 2f/Pe
PENN-ZEE (structural sections) 2f/Pe
PENNTON (urinals) 27a/Bri
PENNVERNON (window glass) 7a/Pi
PENNVERNON GRAYLITE (plate glass).7a/Pi
PENTA (wood preservatives) 5d/Mo
PENTECOR (glass) 7a/Mi
PENWOOD (flush wood doors) 16c/Sp
PENWOOD (plywood) 5b/Sp
PERF-A-BEAD (corner beads) 12c/Uni
PERF-A-TAPE (wallboard tape, cement) 12c/Uni
PERF-A-TRIM (wallboard trim) 12c/Uni
PERFA-TAPE (joint finishers) 15/Un
PERFATONE (acoustical tile) 11a/Un
PERFECT VISION (lighting fixtures)..33a/Cu
PERFO-LYTE (acoustical plaster) 12e/Na
PERFUSAIRE (registers) 31f/Au
PERI-GLO (floor cleaner) 13m/In
PERIMAHEAT (convectors) 31a/Yo
PERIMSUL (insulation) 10a/Ba
PERISEAL (spar vehicle, finish) 15/Na
PERM-A-GRIP (anchor templets) 27d/Ar
PERM-A-KROM (bathroom accessories) 27d/Ar
PERM-NENT (plastic cement, adhesives) 7d/As; 8b/As
PERM-O-SEAL (sink rims) 27a/Bri
PERM-SEAL (corrugated filler strips) 7d/As; 8b/As
PERMA CAP (roofing material).....8a/Ow
PERMA-CODE (pipe, wire and cable markers) 29a/Br
PERMA FAILLE (plastic fabric for vertical blinds) 19d/Su
PERMA-GLAZE (floor tiles) 13c/Po
PERMA-GLOSS (finish for plumbing fixtures) 27a/Ri
PERMA-PANEL (chalkboards, tackboards, pegboards) 23e/So
PERMA SHAN (plastic fabric for vertical blinds) 19d/Su
PERMA-SKIN (plastic coatings) 15/Su
PERMA SUN (plastic fabric for vertical blinds) 19d/Su
PERMA TEX (plastic fabric for vertical blinds) 19d/Su
PERMA-TOP (chimney tops, fly-ash chambers, spark arrestors) 28a/Pe
PERMACOLOR (finish) 22a/Vi
PERMACUSHION (gymnasium flooring) 13J/Rob
PERMABOARD (asbestos-cement sheets) 8c/Na
PERMACOUSTIC (acoustic tile) 11a/Jo
PERMAGLAS (storage tanks) 30c/Sm
PERMALIFE (plastic flooring) 13i/Am
PERMALITE (perlite aggregates) 10a/Gr; 12d/Gr
PERMALOK (nailable stud system) 12a/Pe
PERMALYNN (letter and sign backgrounds) 23a/Ly
PERMAPLY (plywood panels) 5b/Un
PERMAPLY (roofing material) 8a/Ow
PERMASLAB (fire-labeled doors).....16b/Sa
PERMATITE (windows) 17a/Ge
PERMATOWER (cooling towers) 30b/Ma
PERMATRED (stair treads) 13i/Ar
PERSPEC (metal office partitions).....22a/Ae
PETITE (bathroom cabinets) 27d/Mi
PETRALOX (cement-asbestos chalk-boards) 23e/Lo
PETRICAL (wood fiber building panels) 2d/Fi
PHANTOM (garage ventilation) 31e/Na
PHILLIPS RED HEAD (concrete anchors) 2i/Ph
PHOTO-LITE (gas light controls) 31a/Ar
PI-PLANK (precast, prestressed concrete plank) 2d/Pi
PICTO (plastic name plates, directories) 23a/AL
PICWOOD (laminated plastic) 14a/Fo
PIERCE (locks) 18e/Sa
PIGGY-BACK (heaters) 30c/Se
PILGRIM (metal bathroom accessories) 27d/La
PILGRIM (shingles) 8d/Cr
PIN-LOCK (sash lock) 17a/Dev
PINHOLE (downlights) 33a/Ra
PINNACLEDGE (roof edge assembly)...8a/Pi
PIONEER (fireproof doors) 16m/Pi
PIONEER (insulating protective coatings) 10d/Wi
PIONEER PLANK (cork floor tile) 13i/Do
PIONITE (laminated surfacing).....14a/Pi
PISTOL GRIP (grid handles) 26c/Hot
PITTCO (curtain wall systems) 3e/Pit
PITTCO (door hinges, checks) 16d/Pi
PITTCO (door hinge, store fronts) 7a/Pi
PITTCO (floor hinges, checks) 18e/Pi
PITTCO (store fronts) 21/Pi
PITTCOMATIC (checks, door hinges) 7a/Pi; 16d/Pi
PITTCOMATIC (door openers) 18e/Pi
PITTCOTE (asphalt emulsion) 10a/Pi
PITTSBURGH (paints) 15/Pi
PIVOMATIC (3 position windows) ..17a/Fen
PIVOT-DOR (tub enclosures) 27c/Ke
PLACEWEL (cement additive) 9/Jo
PLANET (drinking fountains) 27a/Bri
PLANK AND BLOCK (wall and ceiling paneling) 14b/Ma
PLANKTEX (plywood panels) 5b/Un
PLANKWELD (plywood panels) 5b/Un
PLASTECO (dome skylights) 20a/PLa
PLASTEEL (roofing, siding) 8b/PL
PLASTEELITE (fiberglas reinforced panels) 8b/PL
PLASTER-WELD (plaster bonding agent) 4i/La; 12e/La
PLASTERTOX (masonry treatments) 9/To
PLASTI-CALK (calking) 19b/Ch
PLASTI-CANVAS (window shade fabric) 19c/St
PLASTI-LUVR (luminous ceilings) 33a/Lum
PLASTICONE (concrete ties) 2i/Ga
PLASTICORK (cork insulation) 10b/Ar
PLASTIMENT (densifiers) 9/Si
PLASTISOL (joints) 29a/Sti
PLEX-A-LITE (louvers) 4h/Ho
PLEX-O-LITE (lighting fixtures) 33a/Wh
PLEX-ORAMIC (lighting fixtures) 33a/Mi
PLEXI-MODU-LUMINUS (luminous ceilings) 33a/Lum
PLEXIGLAS (plastic material).....7d/Roh
PLEXI-SPHERE (lighting fixtures) 33a/Lia
PLEXOLINE (lighting fixtures) 33a/Da
PLI-NAMEL (enamel) 15/GLi
PLIABOARD (asbestos-cement sheets)..8c/Na
PLIBRICO (incinerators) 28a/PL
PLIOTONE (rubber base coating) ...13h/Pr
PLUGMOLD (multi-outlet wiring systems) 32b/Wi
PLURALITE (glass) 7a/Mi
PLYBASE (plywood) 5b/Do
PLYCHEN (plywood finish) 5b/PL
PLYCLIPS (plywood clips) 2i/CL
PLYFORM (plywood) 5b/Do
PLYGLAZE 101 (concrete form panels).2i/Sai
PLYMETL (metal faced plywood laminate) 3a/Ha
PLYMOUTH (locks, locksets, lock escutcheons) 18e/Sc
PLYONEER (flush doors) 16c/Cu
PLYPANEL (plywood) 5b/Do
PLYRON (plywood) 5b/Si
PLYSCORD (plywood) 5b/Do
PLYSHIELD (plywood) 5b/Do
PLYWALL (plywood paneling) 14b/PL
PLYWEAVE (plywood) 5b/Si
PLYWELSH (hardwood paneling) 13J/Bru
POINTEX (pattern glass) 7a/Am
POLARIS (after hour depositories) 23b/Di
POLARIS (drinking fountains) 27a/Bri
POLKATILE (floor tile) 13i/Ro
POLSPEC (aluminum reflector) 33a/Mo
POLY-CHAMP (polyethylene films) ...8h/Lu
POLY-CLAD (plywood finish) 14b/PL
POLY-FLOW (paints) 15/Ma
POLY-GLAS (architectural panels) 3c/Ma
POLY-KROME (floor tile) 13i/Hak
POLYCHROME (ceramic veneers) 4e/Fe
POLYGRID (cooling tower fill).....30b/FL
POMPEIIAN (floor tile) 13i/Ro
PORC-LIN-PLY (plywood panels) 5b/Un
PORCELGOLD (gold porcelain enamel panels) 3c/Ing
PORCELINER (lighting fixtures) 33a/MiL
PORCELOX (porcelain steel chalk-boards) 23e/Lo
PORCELPANEL (porcelain enamel panels) 3c/Ing
PORCENA (toilet, shower compartments) 22b/Sa
PORCENELL (chalkboards) 23e/Ed
PORETE (concrete slabs) 2d/Con
PORETE (nailable planks) 2d/Po
PORETHERM (insulating concrete) 2d/Po
POREX (concrete slabs) 2d/Po
POREX (roof and floor decking) 2d/Con
POROCK (panel insulation) 3c/Er
POROSWALL (drain pipes) 29a/Wa
PORSETT (carpets) 13L/Le
PORT-A-TERIA (food storing and serving units) 26d/Li
PORTER (aluminum windows) 17a/Por
PORWELD (adhesives) 2d/Po
PORZELINE (incandescent lighting fixture) 33a/Pi
POST-FORM (plastic laminates) 14a/Par
POSTINDEX (record cabinets) 23b/Art
POTTER (fire escapes) 6h/Po
POW-R-TRUCK (elevators) 24a/Ot
POWDERFLO (soap dispensers) 27e/Mo
POWDURN (soap dispensers) 27d/Ar
POWELL (metal lath & accessories)..12a/Po
POWER-BEAMS (floodlights) 33a/Sto
POWER-GROVE (lighting fixtures) ...33a/Sm
POWER-LUME (lighting fixtures) 33a/Wh
POWERDOR (door operators) 16m/Fi
POWERGRAV (power or gravity ventilators) 20c/Va
POWERHOUSE (telephone booths) ...34a/Sh
POWERMATIC (electric toasters) 26c/To
POWEROLLER (bleacher operators) ..23J/Un
POWERPLUGIN (conduits, busbars) ..32a/Ad
POWERVENT (ventilator regulators) ...2J/Lo
POWR-VENT (skylights) 20a/Na
POWRDOR (electric elevator door operators) 24c/Gu

POWRTRUK (elevator sills) 24c/Gu
PRECIPITRON (air cleaners) 31a/We
PRECISION (disappearing stairways, closet fronts) 23n/Pr
PRECISION (electric hot water heating boilers) 31g/Pr
PREM-PAN (plastic laminated panels)..3e/Pr
PREMIER (chalkboards) 23e/So
PREMIER (display cases) 23e/Po
PREMIER (door hardware) 18e/Chi
PREMIER (overhead doors) 16i/Mo
PREMIER ALPHA (asbestos-cement panels) 3e/Pr
PREMIER DELTA (insulated sandwich panels) 3e/Pr
PREMIER GAMMA (insulated panels)..3e/Pr
PREMIER LAMBDA (insulated panels)...3e/Pr
PREMIER SIGMA (insulated panels)....3e/Pr
PREMIUM BRAND (insulation) 10a/Pr
PREMOULDED MEMBRANE (vapor seal).9/Me
PRESCOLITE (lighting fixtures) 33a/Pr
PRESCON (concrete prestressing system).2d/Pr
PRESCOTT (urinals) 27a/Ri
PRESDWOOD (concrete forms) 2i/Ma
PRESDWOOD (chalkboards) .....23e, Go
PRESDWOOD (hardboard, panels)..8b/Ma; 8b/Mas; 14b/Ma; 14d/Mas
PRESIDENT (key drawer files) 18e/Moo
PRESKO (bulletin boards) 23e/We
PRESST-O-CEL (insulation tubing) 3f/Pre
PRESSTITE (sealing, caulking compounds) 3f/Pre
PRESSURE SEAL (double-hung windows) 17c/An
PRESSURESEAL (sealing, caulking compounds) 3f/Pre
PRESSWITCH (switches) 32b/Hu
PREST-O-MATIC (doors, operators) ...16h/CL
PREST-O-MATIC (electric cold storage doors) 23c/CL
PRESTEEL (stairways) 6h/Woo
PRESTFIN (refrigeration pipe) 31a/Fr
PRESTIGE LINE (closet doors).....16b/Amw
PRESTO-SET (glue) 5b/Un; 15/Uni
PRIDE-O-YARD (compressor-condenser) 31b/Ja
PRIMAFIL (primers and fillers) 15/Pr
PRINCE (water closets) 27a/Bri
PRINCESS (bathroom cabinets) 27d/Mi
PRINCESS (folding doors) 16e/CL
PRINCESS (sink cabinets) 27a/Bri
PRISM (glass blocks) 3e/Pi; 7b/Pi
PRISM-BLOCK (skylights) 20a/By
PRISMA-LUMINUS (luminous ceiling with diffusers) 33a/Lum
PRISMALUX (lens diffusers) 33a/Lia
PRISMOLD GRATELITE (light control louver) 33a/Gu
PRO-FIN (louvers) 19e/Lo
PROBOND E. T. (bonding agent).....9/Au
PROFESSION-L (business practice school furniture) 23i/Cr
PROJECT-O-LITE (lighting fixtures)....33a/Ce
PROJECT-O-VENT (projected windows) 17a/Sup
PROJECTORAMA (wide angle scene projectors) 33a/Ce
PROMENADE (roofing tile) 8c/Ke
PROTECTOR (snow guards) 8g/Le
PROTEKINSUL (protective coatings) 10a/Mir
PROTEX (concrete additives, sealers)...9/Au
PROVENCE (floor tile) 13c/Lu
PRY-LITE (lighting fixtures) 33a/Em
PRYEX (lifetime drainline) 29b/Co
PRYME-SHAKES (shingles) 8d/Cr
PSYCHOSECURITY (detention screens).19a/Ch
PUBLIC SERVICE (paper towels, holders) 27e/Cr
PUL-AIR (roof ventilators) 20c/Pe
PULFUZSWITCH (panelboards) 32a/Ad
PULLMAN (roof ventilators) 20c/Pe
PULLMAN (soap dispensers) 27e/Bo
PUNCHY (lighting fixtures) 33a/Cu
PURITAN (metal bathroom accesories) 27d/La
PURKETT (tumblers) 27g/Tr
PUSH-OVER (garage door hardware)..18d/AL
PUTTY STIK (filler) 15/Uni
PYGMEE (rolling steel doors) 16g/Ba
PYRACOTE (fireproof coating) 12d/Am
PYRACOUSTIC (acoustical plaster)...12d/Am
PYRAMID (ceiling pans and panels)..11a/Re
PYRAMID (chalkboards) 23e/Na
PYRAMID (natural slate) 4c/St
PYRENE (fire protection systems) 30f/Fy
PYRESOTE (fire-retardant wood treatments) 5a/Ba
PYREX (lighting glass) 33b/Co
PYRO PANL (fire retardant panels).....7d/Jo
PYROBAR (gypsum tile) 12c/Un
PYRODOME (skylights) 20a/Wa
PYRODOR (fire doors) 16b/Du
PYRODOR (sliding doors) 16h/Dus
PYROFILL (gypsum roof decks) 2d/Un
PYROFORM (formbord) 2d/Un
PYROJET (burners) 31c/Dr
PYROLITE (ceiling heaters) 31h/Ber
PYROMATIC (fire-labeled door operators) 16h/Dus
PYROPANEL (door panels) 16h/Dus
PYROVENT (skylights) 20a/Wa

q

Q-AIR (floor deck) 2b/Ro
Q-CLIP (fasteners) 2b/Ro
Q-DECK (roof deck) 2b/Ro
Q-FLOOR (floor decking) 2b/Ro
Q-PANEL (metal panels) 3c/Ro
Q-R (low contour ventilators) 20c/Va
Q-R JR. (power, roof ventilators) 20c/Va
Q-T DUCTLINER (duct linings) 11a/Ce
QUA-FLEX (fire hose) 30f/Fy
QUAKER MAID (kitchen cabinets, sinks, etc.) 25b/Qu
QUALI-KOTE (paint products) 15/Sh
QUALITY LINE (bathroom cabinets, accessories) 27d/Pa
QUALITYBILT (flush doors) 16c/Fa
QUALITYBILT (wood windows) 17c/Far
QUARTZOID (fire protection equipment) 30e/Gr
QUARTZOID (sprinklers) 30e/Gr
QUEEN ANNE (floor tile) 13i/Ro
QUEEN-BEE (masonry anchors).....2i/Gat
QUENTIN (lighting fixtures) 33a/Wh
QUICK-EXIT (exit, fire door device) ..18e/Sa
QUICKIE (hand and hair dryers)....27e/Bu
QUICK-SET (ceramic bathroom, kitchen accesories) 13c/Mos
QUICK-SET (masonry treatments) 9/Co
QUICKSEAL (masonry treatments) 9/St
QUICKWALL (primers) 15/Ba
QUIEDOR (sound retarding doors) ...16m/Fi
QUIET-DUCT (silencers) 11c/In
QUIET-FLOW (cooling tower silencers) 11c/In
QUIET-FLUSH (flush valves) 27b/SL
QUIET-VENT (silencers) 11c/In
QUIETEEZ (door operators) 16i/At
QUIETONE (acoustical tile) 10a/Uni
QUIK-DRY (enamels) 15/Ma
QUIK-FLAT (enamels) 15/Ma
QUIK-ROK (anchoring cement) 13h/Pr
QUIK-SEALER (plaster sealers) 15/Ma
QUINCY (lighting fixtures) 33a/Wh

r

R B & W (bolts) 2h/Ru
R&H (plastic material) 7d/Roh
R-C (duct floors) 2a/Ce
R & M-HUNTER (heating systems) 31h/Hu
R/C (underfloor wiring) 2a/Co
RCA (engineered sound) 34a/Ra
RCA WHIRLPOOL (home appliances) 25a/Wh
R.C.A. (floor, wall coverings) 13i/Ra
RCM (rubber flooring) 13i/Mu
RFD FARM-CHAMP (reflective insulation) 8h/Lu
R. I. W. (masonry treatments) 9/To
RL (troffer panels) 2c/Fe
RLM (lighting fixtures) 33a/MiL
RM (aluminum doors, frames) 21/Ri
R. O. W. (wood windows) 17c/Ro
R-PAR (lighting fixtures) 33a/Ce
RR (aluminum grating) 13a/KL
RS (ceramic tile panels) 3e/Ce
RS (steel, stainless steel) 6c/Re
R-W (doors, hardware) 16h/Ri
R-W (folding partitions) 22d/Ri
RA-GRID (heater plates) 7a/Am
RACKLE-LITE (lightweight roof slabs)...2d/Ra
RADIANT BLADES (heat-boosting fire-place blades) 31L/Ma
RADIILUXE (stainless steel equipment) 23L/Ju; 25b/Ju
RADOR (door operators) 16i/At
RAILITE (laminated plastic surfacing.14a/Re
RAINSTOP (water repellent) 29a/De
RAMBUSCH (church equipment, design service) 23h/Ra
RAMBUSCH DOWNLITES (down-lights) 33a/Ra
RAMSET (fastening systems) 2i/Ram
RANCH HOUSE (paint) 15/Ca
RANCH ROOF (continuous strip roofing) 8c/Bi
RANCHLINE 8a/Ba
RANDASH (flooring slate) 4c/Ve
RANDEX (pattern glass) 7a/Am
RANDOM-PLANK (hardboard panels) 14d/Geo
RANDOMWOOD (flooring) 13J/Ci
RANGELINE (ranges and ovens) 25a/Gen
RAPID CONTROL JOINT (masonry reinforcement) 4h/Du
RAPID-FLO (admixtures) 9/La
RAPID-FLO (water softeners) 27g/Pe
RAVEN (door chimes) 27d/Mi
RAY-COR (flush doors) 16i/Ray
RAY-LUX (composition panel) 16i/Ray
RAY PROOF (x-ray protective materials) 22e/Ra
RAY VENT (porch enclosures, combination doors) 17a/Dev
RAYSTEP (concrete piles) 1a/Ra
RE-NEW-COAT (coatings) 9/Tru
REACH-THRU (refrigerators) 26a/Ty
READY-FIT (flooring slate) 4c/Ve
READY-4-USE MASTERPLATE (floor treatments) 9/Mas
READY FRAMED (chalkboards, chalkboard trim) 23e/Go
REALOCK (fencing) 22g/Co
REBCO (aluminum building products)..21/Re

trade names

RECEDER (wardrobes) 23d/Eq
RECIPROVEYOR-PALLETLIFT (pallet conveyors) 24d/St
RECORDLIFT (conveyors) 24d/St
RECREATION LINE (gymnasium equipment) 23k/Re
RED TOP (insulating blanket, wool).10a/Uni
RED TOP (lime, gypsum plaster) 12e/Un
RED TOP (masonry lime) 4i/Un
RED TOP (patching plaster) 15/Un
RED TOP AUDICOTE (acoustical plaster) 11a/Uni
RED-I-MIX (insulation protection) 9/Le
REDONDO (floor, wall tile).....13c/Sty
REDWOOD (sealers, stains) 15/Moo
REFLECTADOME (plastic skylights) ...20a/Wa
REFLECTAL (building insulation).....10a/Re
REFLECTAL (screens) 19e/Re
REFLECT-A-LINE (lighting fixtures) ..33a/Lia
REFLECT-O-SPHERE (display accent lights) 33a/Ce
REFLECT-O-SPHERE (display accent lights) 33a/Ce
REFLECTO-BARRIER (adhesives, plastic film) 8a/Re
REFRIG-A-BAR (refrigerators) 25b/Ac
REFRIG-O-RANGE (kitchen units) 25b/Ac
REGAL (chalkboards) 23e/Ne
REGAL (folding doors) 16e/CL
REGAL (roof coating) 8a/Jo
REGALITE (shade cloth) 19c/Jo
REGENCY (overhead doors) 16i/At
REGENCY (sliding glass doors) 16d/AL
REGENT (key wall cabinets) 18e/Moo
REGENT (lock escutcheons) 18e/Sc
REGENT (overhead doors) 16i/Mo
REGLEX (pattern glass) 7a/Am
REGULA (lighting fixtures) 33a/Cu
RELAMP-A-LITE (lighting fixture frames) 33a/Pr
RELAX (spring hinges) 18e/Chi
RELGRIT (grating, safety treads) 13a/Re
RELIANCE (steel casement windows)..17b/Wi
REMINGTON RAND (office furniture).23o/Re
REMITE (mechanical seals) 31i/Be
RENAISSANCE (floor tile) 13c/Lu
RENAISSANCE (plastic flooring) 13i/Am
RENOIR (plastic floor tile) 13i/Bo
REPUBLIC (steel, stainless steel) 6c/Re
REPUBLIC (steel pipe) 29a/Rep
RESERVE (shower doors and enclosures, tub enclosures) 27c/Ke
RESIGARD (institutional screens) 17a/Se
RESILBASE (floor covering, underlayment) 10a/Ho
RESISTA-CRETE (finish) 15/Wa
RESISTOX (fillers) 9/To
RESIWELD (adhesives, coatings, sealants) 3f/Fu
RESOLITE (plastic panels) 7d/Re
RESTO-CRETE (masonry coating) 9/Wet
RETARDO (paints, enamels) 15/Moo
REV (enamels, paints) 15/Ame
REVCO BILT-IN (custom refrigerator-freezer combinations) 25a/Rev
REVERE (gravel stops) 8g/Rea
REVERE (tube and pipe) 29a/Rev
REVERE-KEYSTONE (flashings) 8b/Re
REVERE-SIMPLEX (reglets) 8b/Re
REVO-FILE (filing cabinets) 23b/Mos
REX (roofing) 8a/FL
REXPAR (paint products) 15/Sh
REXALT (roofing coatings) 8a/FL
REZ (wood sealers) 15/Re
REZ-SEAL (sealer) 9/Eu
REZILL (floor cushioning) 13J/Co
REZITE (wood finishes) 15/Re
REZNOR-OLSON (direct fired heaters) 31c/Rez
REZO (wood doors) 16c/Pa
REZO-FOLD (door units) 16c/Pa
RHEEM-RICHMOND (plumbing fixtures) 27a/Ri
RHINO BRAND (adhesives) 13c/Pe
RHINO BRAND (building products) 3f/Pe
RHINO-KLAD (plastic floor toppings)...15/Su
RIBAC (plank flooring) 13J/Har
RIBBON LITE (continuous skylight)....20a/By
RIBFORM (steel forms) 2a/In
RIBLATH (flat metal lath) 12a/Un
RIBPLEX (metal lath) 12a/Tr
RIB-LINE (hardboard panel siding)..10a/Ce
RIB-TITE (prefabricated metal buildings) 2J/Pa
RICE-TEX (shade, drapery fabric)....19c/Ri
RICE-TWEED (drapery fabric) 19c/Ri
RICHCOR (lavatories) 27a/Ri
RICHELIEU (lavatories) 27a/Ri
RICHLAND (movable wall partitions).22a/Ga
RICHMOND (baffles) 34a/Lo
RICHMOND (lighting fixtures) 33a/MiL
RICHMOND (pass windows) 16g/Ri
RIDGE (doors) 16i/Rid
RIDGE (overhead doors) 16i/Rid
RIDGEGROOVE (hardboard panels).....8b/Ma; 8b/Mas; 14d/Mas
RIDGELINE (hardboard panels).....8b/Ma; 8b/Mas; 14d/Mas
RIDGEVENT (roof ventilators) 20c/Oc
RIG-I-FLEX (curtain tracks) 23g/Au
RIGID-TEX (metals) 6c/Ri
RIGIDWALL (insulating board) 10a/Bar
RIGIDWALL (sheathing) 8a/Ba
RIJARC (flooring strips) 13g/Ma
RIJLINE (base beads) 13g/Ma
RILCO (arches, trusses, roof decking etc.) 2e/Ri
RILCORD (trusses) 2e/Ri
RINO BRAND (building products) 7c/Pe
RIPPLE-LAWN (carpet cushions) 13L/Go
RIPPLEWOOD (plywood paneling)....5a/Ge
RISERFRAME (seat anchors) 2i/Su
RITE-ANGLE (column clamps) 2i/Ho
RITE-LITE (acrylic skylights) 20a/By
RITE-LOCK (locks) 18e/Ad
RITE VENT (ventilator skylights) 20a/By
RITE-WEIGHT (building insulation)...10a/Ba
RITTENHOUSE (chimes) 25a/Em
RIV-DEXTEEL (bridge decking) 13a/KL
RIVAL (leader straps) 8g/Le
RIVIERA (lock escutcheons) 18e/Sc
RIVIERA (plastic panels) 7d/AL
RIVIERA (shower cabinet) 27c/Cu
RIXON (automatic door operators)....18e/Ri
RO-WAY (overhead doors, motor operators) 16i/Ro
ROBBINETTE (floor tile) 13i/Ro
ROCK CORK (mineral insulation) 8a/Jo
ROCK-WELD (filler, sealer) 13h/Pr
ROCKET (commercial cooking equipment) 26c/Hot
ROCKET (sliding door hardware) 18d/Gr
ROCKFACE (partitions) 22a/Wh
ROCKLATH (gypsum lath) 12a/Un
ROCKLATH (plasterwork accessories).12c/Un
ROCKTOP (pigment and aggregate) 9/To
ROKITE (oven hearth) 26c/BLo
ROL-FOL (folding benches, tables)..23i/Ro
ROL-TOP (rolling doors) 16g/Ki
ROLD EDGE (fire hose cabinets) 30f/St
ROLL-A-WAY (chalkboards) 23e/Ko
ROLL-A-WAY (gymnasium seating) ...23J/Un
ROLL-AWAY (skylights) 20b/Fi
ROLL-OUT (gymnasium seating) 23J/Hu
ROLL-R-RACKS (dishwashing racks) ..25a/Hot
ROLLA-HEAD (venetian blinds) 19d/Ea
ROLLA-TEX (venetian blind tape) 19d/Ea
ROLLFORM (acoustical ceiling panels, fastening systems) 11a/Ro
ROLLING-COLD (refrigerated packaging conveyors) 26a/Ty
ROLSCREEN (screens, windows) 17c/RoL
ROLTITE (adhesive) 14a/Co
ROLTITE (contact cement) 13i/Mi
ROLY-DOOR (overhead doors) 16i/Mo
ROMAN (steel sliding glass doors)..16d/Ro
ROMANY (ceramic tile) 13c/Un
ROMANY SPARTAN (ceramic tile panels) 3e/Ce
ROMARK (traffic paint) 15/GLi
RONDO (expanded metal) 6e/Un
ROOFINSUL (fiber insulation) 8a/Jo
ROOFINSUL (roof insulation) 10a/Jo
ROOF-LINE (gravity ventilators) 20c/Va
ROOFMATE (roof insulation).....10a/Do
ROOMAIRE (air conditioners) 31a/Yo
ROTA-GRILL (grilles, ovens) 25a/Hot
ROTA-LIFT (autopsy table tops) 23L/Ma
ROTA-RELIEF (power units) 24a/Ro
ROTARY (lifts) 24a/Ro
ROTARY (rising stages) 23g/Ro
ROTO-FILE (filing cabinets) 23b/Mos
ROTO-OPERATORS (window operators) 17b/FL
ROTO-STRIP (lighting fixtures) 33a/Ne
ROTO-WAITER (dumbwaiters) 24a/Se
ROTODRAPER (curtain fixtures) 23g/Au
ROTOSPOT (recessed lights) 33a/Ra
ROTOWOOD (plastic laminates)....14a/Par
ROYAL (face brick) 4f/Ce
ROYAL (flush valves) 27b/SL
ROYAL (glazed ceramic tile) 13c/Roy
ROYAL (roof ventilators) 20c/Pe
ROYALFOLD (accordion partitions) ...16e/Cu
RUBADUCT (wire coverings) 13i/Go
RUBATEX (closure strips) 8b/Ru
RUBATEX (insulation materials) 10b/Ru
RUBBAIR (rubber doors) 16k/St
RUBBER-BITE (refrigerator gaskets) ...26a/Ba
RUBBER CALK (caulking compounds, sealers) 3f/Pro
RUBBER-LOC (carpet cushion) 13L/AL
RUBBER-TOP (carpet cushion) 13L/AL
RUBBERSEAL COPPER (flashings, waterproofing) 8g/Mi
RUBEROID (built-up roofing) 8a/Ru
RUBEROID (shingles, siding) 8c/Ru
RUGASOL (concrete coating) 9/Si
RUGG-TEX (tile finish) 4f/Na
RUGTEX (rubber matting) 3i/Ar
RUSCO (steel windows) 17a/Ru
RUSHTON (urinals) 27a/Bri
RUST-OLEUM (rust preventives) 15/Ru
RUST STOPPER (metal primer) 15/Ame
RUSTALOY (primers) 15/So
RUSTIC (plastic tile) 13g/We
RUSTICWOOD (plywood) 5b/Si
RUSTITE (masonry treatments) 9/Pa
RUSTMASTER (tank primer) 15/GLi
RY-WEDG (grating) 2d/Ry
RY-WELD (grating) 2d/Ry
RYERTEX-OMICRON (waterstops, gaskets, pipe, etc.) 2d/Ry
RYEX (grating) 2d/Ry

RYNO HYDE 90 (metal protective coating) 9/HL
RYSDONITE (doors) 16m/Fi
RYNOSEAL (wood finishes) 15/So

S

S-C (sound communications system)..34a/Str
S-G (institutional hardware) 18f/Sa
S.I.S. (roofing) 8a/Ba
SM (partitions) 22a/Na
SP (steel partitions) 22a/St
SPS (school shop furniture).....23i/St
SSS (flush wood doors) 16c/Ge
SWP (paint products) 15/Sh
SABINA (sinks) 27a/Ri
SABINITE (acoustical plaster) 11a/Uni; 12e/Un
SABRE (lighting fixtures) 33a/MiL
SAF-T-DOR (wardrobes) 23d/Eq
SAF-T-LOK (weatherproof outlets, switches) 32b/Be
SAF-T-TRED (rubber flooring).....13i/Mu
SAFA (fire alarms) 30f/Fy
SAFE-BOND (contact cement) 14a/Fo
SAFE-EDGE (strip channels, corner lath) 12a/Na
SAFE-GRIP (grab bars) 27d/Ar
SAFE-GROOVE (thresholds, treads)..13b/Wo
SAFE-RAY (elevator operators) 24a/Ha
SAFE-T-COAT (coating for underground ducts) 32b/Sp
SAFE T LINE (window cleaners' devices) 18c/We
SAFE-T-SAN (floor polishes, finishes) 13m/Hu
SAFEGUARD (fencing) 22g/Cy
SAFETY GRID (heating elements) 31h/EL
SAFETY-SLIDE (cold storage room doors) 23c/Bu
SAFETYMIX (plumbing valves) 27b/Sy
SAFSTEP (safety treads) 13a/Ir
SAFWAY (telescoping gym seats) 23J/Sa
SAGLESS (door hardware) 18e/Chi
SAINO (fire doors) 16b/Sa
ST. CHARLES (hospital casework) 23L/Sa
ST. CHARLES (kitchen equipment) ...25b/Sa
ST. CHARLES (school storage furniture) 23i/Sa
SALEM (locksets) 18e/Sc
SALEM (shingles) 8c/Jo
SALEM (ventilating hoods).....31e/Tr
SALES-CASES (refrigerated food display cases) 26a/Ty
SALT SPRAY (steel doors and track)..16i/Ove
SAMPSON (clothesline poles) 2i/Ho
SAMSON (aluminum, steel curtain walls) 3a/Sa
SAMSON (shade cloth) 19c/Jo
SANACOUSTIC (metal tile) 11a/Jo
SANDRAN (vinyl flooring, adhesives)..13i/Sa
SANI-DRY (hand and hair dryers)....27e/Ch
SANI-FLAT (paints, enamels) 15/Moo
SANI-GIENE (enamel) 15/GLi
SANI-STEEL (registers) 31f/Un
SANIMASTER (water heaters) 30c/Ru
SANISAC (waste receptacles) 26e/Ro
SANISEAL (hardeners) 9/Mas
SANITON (women's urinals) 27a/Bri
SANPAN (translucent building panels).3e/Pa
SANYMETAL (toilet, shower compartments) 22b/Sa
SAPPHIRE (sliding aluminum windows) 17a/Sa
SARALOY (flashings) 8g/Do; 10a/Do
SARATOGA (shower cabinets) 22b/FL
SARGENT (builders hardware) 18e/Sa
SARGENT MAGNALOCK (locksets) ..22a/Hau
SARGENT SENTRYLOCK (locks) 22a/Hau
SATIN-ALKYD (enamel) 15/Ha
SATIN-GLAZE (tile) 13c/Mos
SATIN SHEEN (paint) 15/Ha
SATINHIDE (enamel) 15/Pi
SATINLAC (fillers, stains) 15/Uni
SATINLAC (lacquer) 5b/Un; 13k/Uni
SATURDAY PATCH (patching compound) 9/Eu
SATURN (drinking fountains) 27a/Bri
SATURN (locks, lock escutcheons) 18e/Sc
SAV-WAY (toilet tissue, dispensers)..27e/Ste
SAVE-LITE (paint products) 15/Sh
SAVEALL (automatic sprinklers) 30f/Fy
SAVOY (lock escutcheons) 18e/Sc
SAW SHUTLBRAK (switchboards) 32a/Ad
SAXE (welded connections) 2h/Sa
SAXON (glass blocks) 3e/Pi; 7b/Pi
SCHENLEY (sinks) 27a/Ri
SCHLAGE (locks, locksets, lock escutcheons) 18e/Sc
SCHLEGEL (weatherstripping) 16a/Sc; 17a/Sc
SCHOLASTIC (protective wood finish) ..15/Pr
SCHOOLER (water coolers) 30d/Fi
SCHOOLINE (wardrobe racks) 23d/Vo
SCHWAB (jalousies) 17d/Sc
SCHWARTZ (pharmacy equipment) ..23L/Gr
SCORBORD (insulation) 10a/Do
SCORED TILE (glazed tile) 13c/Am
SCOTCH SHORES (couplers) 2i/Gat
SCOTSMAN (gliding door hardware) 18d/Ke
SCOTT (washroom advisory service and equipment) 27e/Sc
SCOTTIE (gliding door hardware) ..18d/Ke
SCOUT (juvenile water closets) 27a/Bri
SCREW-TITE (chalkboard trim) 23e/Go
SCREW-TITE (nails) 18a/In
SCUF-CHAMP (vapor barriers) 8h/Lu
SCULP-STONE (decorative panels).....4d/Do
SCULPTURAMA (porcelain enamel panels) 3c/Da
SE-CUR (floor wax) 13m/In
SEA SWIRL (plywood panels) 5b/Un
SEADRIFT (hardboard panels) 8b/Mas; 14d/Mas
SEAFORD (sinks) 27a/Ri
SEAL-A-MATIC (awning windows) ...17a/Sup
SEAL-A-MATIC (garage hinge) 16i/Ro
SEAL COAT (sealers) 8a/Ko
SEAL-CRETE (concrete floor sealer)...13m/In
SEAL-FLEX (removable window operative hardware) 18a/Gr
SEAL-O-SAN (floor polishes, finishes) 13m/Hu
SEAL-PRUF (sheet flashing) 8g/Ru
SEALAIR (windows) 19e/Ka
SEALAIR (windows, spandrels) 17a/Ka
SEALAIRE (aluminum windows) 3a/Ka
SEALER-CLEAR (terrazzo floor sealer).13m/In
SEALSTRIP (glazing tape) 3f/St
SEALTIGHT (waterproofing membrane)..9/Me
SEALTITE CORKCOTE insulation mastic) 10a/Un
SEALUME (gaskets) 33a/Mc
SEALWELD (coffee urns) 26d/BL
SEALZ (primers) 15/So
SEAPORCEL (porcelain enamel) 3c/Se
SEAPORCLAD (insulated porcelain panel) 3c/Se
SECO (fire protection equipment) 30f/Se
SECO (plastic protective systems, abrasive building resins) 15/Su
SECOTON (plastic protective systems) ..15/Su
SECTIONFOLD (folding doors) 16g/WiL
SECUR-ALOY (wire mesh) 19a/Ba
SECURIT (glass doors) 16d/Am
SECURIT (heat tempered glass, glass doors) 7a/Am
SECURITEE (ceiling suspension system) 11b/Ha
SECURITY (elevator doors) 24a/Se
SECURITY (hollow metal doors, frames) 16b/Se
SECURITY (plastic panels) 7d/Re
SEGMENTILE (tile) 4f/Na
SELBATEX (seamless floor covering) ..13i/Se
SELECT-A-SPEC (locks and hardware file) 18e/Co
SELECT-A-VENT (awning windows) ...17a/Sou
SELECT-O-PHONE (communication systems) 34a/Ke
SELECTAFLOW (controls, valves) 31i/De
SELECTEMP (heating system) 31J/Ir
SELECTOMATIC (elevator controls)..24a/We
SELECTRIC (water heaters) 27a/Cr
SELF-SENTERING (metal lath) 12a/Tr
SELMA (sinks) 27a/Ri
SELV-EDGE (metal lath) 12a/Un
SEMENTCOAT (cement coatings) 9/La
SEMI-LUSTRE (paint products) 15/Sh
SENATOR (food warming cabinets)..26d/Foo
SENIOR (pocket doors) 16d/Su
SENTINEL (showers) 27b/Sp
SENTINEL (toilet partitions) 22b/Mi
SENTRYLOCK (locks) 18e/Sa
SEPTAMENE (concrete control) 9/Con
SEQUIN (floor covering) 13i/Co
SERBIN (sinks) 27a/Ri
SERV-MOBILE (cart food dispensers)..26d/Sw
SERVI-CENTER (cabinet sinks) 25b/Yo
SERVICE (shade cloth) 19c/Jo
SERVICEMAN (door operators) 16i/Mc
SERVICISED (sealers, fillers, waterstops 2i/Se
SERVILLA (sinks) 27a/Ri
SERVINETTE (food vendor units) 26a/Au
SERVIRE (fire doors) 16g/Co; 22d/Co
SEWERTITE (sewer joint cements) 2i/Ca
SHADE-PAX (aluminum marquees).....19e/AL
SHAD-O-RUG (rubber matting) 13i/Ar
SHAD-O-RUG (rubber runners) 13i/Ko
SHADOFRAME (aluminum rolling windows) 17a/GL
SHADOW-LINE (kitchen cabinets)....25b/Ki
SHADOWFLASH (unglazed tile) 13c/Am
SHADOWOOD (plywood) 5b/Si
SHADOWVENT (hardboard panels) 8b/Ma; 8b/Mas
SHAKE-PANEL (shake panels) 8d/No
SHALLORAMA (lighting fixtures) 33a/Sun
SHAW-WALKER (bank equipment) ...23b/Sh
SHEETFLEXTOS (asbestos sheets) 8c/Ke
SHEETFORM (steel forms for concrete).2a/Sm
SHEETROCK (gypsum formboard) 2d/Un
SHEETROCK (gypsum sheathing, wallboard) 12c/Uni
SHEETROCK (sealers) 15/Un
SHEETROCK-TRUSSTEEL (studs) 12c/Uni
SHEFFIELD (ventilating hoods) 31e/Tr
SHELFORD (lavatories) 27a/Cr
SHELL-ICE (ice making machine) 31a/Fr
SHELTON (sinks) 27a/Ri
SHERARDUCT (conduit, couplings) ...32b/Na
SHERATON ((lighting fixtures) 33a/Sm
SHIELDCOTE (enamels) 15/Ame
SHIELDOR (toilet seat covers, dispensers) 27e/Ste
SHIELDWHITE (house paint) 15/Ame
SHINGLE-BACKER (shingle undercourse) 10a/Ins

trade names

SHINGLSTIK (cement) 8c/Ru
SHONE (ejectors) 30a/Ye
SHOP-BLOCK (flooring) 13J/Ci
SHOP TOP (laminated wood bench tops) 23i/St
SHOVELITE (lighting fixtures) 33a/Ra
SHOWER MAGIC (bath enclosures)..16d/Da
SHOWERAMA (bath enclosures) 16d/Da
SHOWERITE (shower doors, tub enclosures) 27c/Ef
SHOWERMASTER (shower cabinets)..22b/Sa
SHOWEROFF (plumbing valves) 27b/Sy
SHURE-SET (fastening tools) 2i/Ram
SHUR-SITE (safety stair tread) 31f/He
SURE-TEMP (gas water heaters) 30c/Sm
SHURBOND (concrete inserts) 2i/Ho
SI-FLO (flush valves) 27b/Sp
SICO CORE (wall panels) 3c/Be
SIERRA (shower receptors) 27c/Fi
SIESTA (vertical ventian blinds) 19d/Ku
SIGHT-TITE (grilles) 31f/Ba
SIGHTLINE (lighting systems).....33a/Sun
SIGHTRON (lighting fixtures) 33a/Lia
SIGNATURE BRICK (plaques, signs)....6f/Ar
SIGNET (bathtubs) 27a/Bri
SIGNLITE (lighting fixtures) 33a/Wh
SIGUNIT (masonry treatments) 9/Si
SIKA (masonry treatments) 9/Si
SIKA AER (masonry treatments) 9/Si
SIKA-GARD (floor hardeners) 9/Si
SIKA GUARDKOTE (surfacing compound).9/Si
SIKA-KOTE (masonry treatments) 9/Si
SIKA-PEL (masonry treatments).....9/Si
SIKA-PLUG (sealers) 9/Si
SIKA SEAL (primers, sealers) 9/Si
SIKA-SET (masonry treatments) 9/Si
SIKA SURFACE-KOTE (surfacing compound) 9/Si
SIKACRETE (accelerators) 9/Si
SILAKOTE (masonry treatments) 9/We
SILANEAL (brick treatment) 9/Dw
SILCO (aluminum trim) 23e/Ne
SILCOLAC (water repellents) 9/Ce
SILCOTITE (water repellents) 9/Ce
SILENT CEILING (acoustical ceiling)..11a/Ea
SILENTEX (insulating tile) 10a/Na
SILIPRUF (masonry waterproofing)....13h/Pr
SILL-SEALER (blanket insulation)....10a/Wo
SILLSEAL (freezer door gaskets) 23c/Ja
SILLSULATION (insulation) 10a/Fo
SILOX (masonry sealers) 15/Wa
SILTECT (waffle bakers) 26c/To
SILVAY (sinks) 27a/Ri
SILVER-CHAMP (reflective insulation) 8h/Lu
SILVER SEAL (wood floor sealer) 13m/In
SILVER SERVICE (curtain machinery)..23g/Au
SILVER-SHEELD (protective film for ducts) 32b/Ga
SILVER-TEX (carpet cushion) 13L/AL
SIMIX (water mixing valves) 27b/Si
SIMPLEX (acoustical ceiling systems)...11a/Si
SIMPLEX (chalkboards, corkboards, molding) 23e/Be
SIMPLEX (disappearing stairways) ...23n/Pr
SIMPLEX (door hardware) 18e/Chi
SIMPLEX (gratings) 13a/Ir
SIMPLEX (raceway systems) 32b/St
SIMPLEX (radiant heating panels).....31b/Si
SIMPLEX (roof ventilators) 20c/Va
SIMPLEX (sprinkler system) 30e/Gr
SIMPLEX (steel casements) 17a/Fe
SIMPLEX (time recorders) 34b/Si
SIMPLICITY (bathroom accessories)..27d/Pa
SIMPLICITY (movable partitions) 22a/Un
SIMPSON (acoustical products) 11a/Sim
SIMPSON (plywood, plywood products) 5b/Si
SIMPSON (stile and rail doors) 16c/Sim
SIMPSON (wood doors) 16c/Si
SINGLINE (partitions) 22a/Mi
SINKETTE (sinks) 25b/ELk
SIPHON (roof ventilators) 20c/Oc
SIROCCO (fans) 31a/Am; 31a/Ame
61 (enamel, fillers, varnish) 15/Pr
SKY LUX (luminaires) 33a/Cu
SKYDOME (skylights) 20a/Wa
SKYLIGHTER (skylight blinds) 19d/Lo
SKYLINE (roof ventilators) 20c/Ar
SKYLINER (lighting fixtures) 33a-Mi
SKYSHADE (skylight shades) 20a/Van
SKYTEX (pattern glass) 7a/Am
SKYTRAIL (vinyl-asbestos floor tile)...13i/FL
SKYVENT (ventilating dome skylights) 20a/Wa
SLABFORM (concrete forms) 2f/Bet
SLABLIFT (concrete slab handles) 2i/Ho
SLATEBESTOS (chalkboards) 23e/Be
SLATOPLATE (chalkboards) 23e/Be
SLATOSTEEL (chalkboards) 23e/Be
SLEEK-LINE (continuous roof ventilators) 20c/Va
SLENDA-LITE (plastic diffusers) 33a/Lin
SLENDEX (lighting fixtures).....33a/Sm
SLIDE-A-SHADE (shades, shade hardware) 22c/Ji
SLIDE-AWAY (towel, pan, cup racks) .18g/Kn
SLIDE-MASTER (aluminum windows) 17a/Wir
SLIDERITE (drawer slides) 18d/Gr
SLIDE-WALL (folding partitions) 22d/Na
SLIMLINE (chests and beds) 23i/Sim
SLIMLUX (lighting fixtures) 33a/Gu
SLIP-TITE (chalkboard trim) 23e/Go
SLUSHSEAL (partitions) 22b/FL
SMALMESH (lath) 12a/In
SMOKESTACK (black paint) 15/GLi
SMOOTH SEAM (fiber tubes) 2a/Ap
SMOOTHEE (door closers) 18e/La
SNAP-IN (form ties) 2i/Da
SNAP-LOCK (panel moulding) 22a/Co
SNAP-ON (pipe insulation) 10a/Gu
SNAP-ON-TRIM (door, window trim).12c/Uni
SNAP-TITE (chalkboard trim) 23e/Go
SNAPICOIL (wiring systems) 32b/Wi
SNAPTIE (concrete form ties) 2i/Me
SNAPTITE (gutters) 8g/Re
SNAP-TY (anchors) 2i/Ri
SNEAD (library equipment) 23f/GL
SNO-QUEEN (refrigerators) 26a/Vi
SNOLITE (enamel, primer-sealer) 15/Pi
SNORKEL (bank windows) 23b/Mos
SNOW WHITE (paint, sealers) 9/St
SNOW-WHITE (vinyl roof coating)...8a/De
SNUG-TITE (door catch) 18g/En
SOAP MASTER (soap dispensers) 27e/St
SOAPARATUS (soap dispensers) 27e/We
SOAPMASTER (soap dispensers).....27e/Vo
SOF-TRED-TYLE (roll matting) 13i/Ko
SOFFITSOTE (soffit material) 10a/Ho
SOFSTEP (rubber floor tile) 13i/Mas
SOFT-LITE (glass blocks) 7b/Pi
SOFTAN (toilet tissue) 27e/Bro
SOFTENALL (water softeners) 27a/Cr
SOFTGLODOME (lighting ware) 33a/Pi
SOFTITE (galvanized coating) 2a/Wh
SOFTITE COP-R-LOY (galvanized steel) 12a/Wh
SOFTOWATER (water softening system) 30b/Li
SOFWITE (toilet tissue) 27e/Bro
SOL-DEC (sun control devices) 3a/ALu
SOL-SET (aluminum louvers) 19e/ALu
SOLARAIRE (skylight-ventilators) 20c/We
SOLARGRAY (plate glass) 7a/Pi
SOLAROID (domes) 20a/Na
SOLEX (plate glass) 7a/Pi
SOLIDEX (paint) 15/Pr
SOLIDOR (flush doors) 16c/Fa
SOLIDUS (hardeners) 9/La
SOLUX (lighting fixtures) 33a/So
SOLVE-X (solvents) 15/Ma
SON-NEL (chalkboards) 23e/So
SON-NEL (folding tables and benches) 23i/So
SON NO MAR (concrete floor treatment) 9/So
SONICBAR (sound retarding door) ...16m/Fi
SONOAIRDUCT (fibre ducts) 31f/Son
SONOBATTS (acoustical batts) 11a/Ow
SONOBRITE (concrete coloring) 9/So
SONOCO (concrete forms) 2i/Son
SONOCOR (acoustical pads, rolls) ..11a/Ow
SONOFACED (acoustical tile facing).11a/Ow
SONOLASTIC (synthetic caulking compounds) 9/So
SONOPLEX (coatings) 9/So
SONORA (sinks) 27a/Ri
SONOSORBER (sound absorbers) 11a/Ha
SONOTARD (concrete admixtures) 9/So
SONOTROL (roof ventilator curbs) ...20c/Pe
SONOTUBE (concrete column forms)..2i/Son
SONOVOID (fiber tubes) 2d/Son
SORBETTE (towel cabinets) 27e/Cr
SOUND LOK (door units) 16m/Fi
SOUND-SHIELD (acoustical insulation) 11a/Co
SOUNDEX (partitions) 22a/Ga
SOUNDMASTER (folding partitions)..22d/Ne
SOUNDPANS (translucent lighting pans) 11a/Con
SOUNDSHEET (translucent acoustical materials) 11a/Con
SOUTHSHORE (overhead doors) 16i/At
SOVEREIGN (lighting fixtures) 33a/MiL
SPA-SAVER (refrigerators) 25b/Ac
SPA SPIREX (sash balances) 18a/Ca
SPACE-MATES (domestic dryers) 25a/We
SPACE PANELS (aluminum partitions).22a/Par
SPACE-RITE (tile alignment systems) ...13c/Po
SPACE SAVER (blowers) 31e/Tr
SPACE-SAVER (film filing cabinet) 23L/Ge
SPACE SAVER (freezers, refrigerators).26a/Jo
SPACE-SAVER DOOR (folding doors).16e/Wo
SPACEMASTER (folding doors) 16e/Ne
SPACEMASTER (wardrobes) 23d/Eq
SPACESAVER (air conditioners, furnaces) 31a/Ai; 31a/Air
SPAL (detergents) 13m/Hu
SPANDO (metal flashing) 8g/Che
SPANDRELITE (colored glass) 3e/Pit
SPANDRELITE (structural glass) 7a/Pi
SPANG (underfloor distribution systems) 32b/Sp
SPANOTRAC (drapery tracks) 23g/Au
SPARAMICS (mosaic tiles) 13c/Un
SPARKLE (ceramic tile) 13c/We
SPARKLERS (floor tile) 13i/Bon
SPARLITE (lighting fixtures) 33a/Mu
SPARTAN (ceramic tile) 13c/Un
SPARTAN (locksets) 18e/Co
SPARTAN (overhead doors) 16i/At
SPARTON (urinals) 27a/Bri
SPARVEX (varnish sealer) 15/Na
SPATTER (linoleum) 13i/Arm
SPATTERTEX (rubber matting) 13i/Ar

SPECIALMESH (lath) 12a/In
SPECIFICATION (built-up roofing) 8a/Ba
SPECTRA-GLAZE (glazed concrete blocks) 4g/Bu
SPECTRIM (colored metal mouldings) ..21/Pi
SPEE-D-DRY (paints) 15/Ac
SPEED-A-BACKER (tile) 4f/Na
SPEED-A-TERIA (food storing and serving units) 26d/Li
SPEED-E-DRY (paint vehicle) 15/Ru
SPEED-E-STRIP (paint and varnish remover) 13m/In
SPEED-FILL (water stations) 27b/Ta
SPEED-STRIP (metal chamfer strips)....2i/Su
SPEEDENAMEL (primer) 15/GLi
SPEEDER (diswashers) 26b/In
SPEEDLINE (ironers) 27g/Tr
SPEEDLOK (refrigerator locking device) 26a/Ba
SPEEDMOUNT (wiring devices) 32b/Be
SPEEDOMATIC (troffers) 33a/Sm
SPEEDRAMPS (escalators) 24a/Mon
SPEEDWALKS (escalators) 24a/Mon
SPIN-SEAL (fateners) 2h/Ru
SPINTEX (mineral wool insulation) 10a/Jo
SPIRAFLEX (sash balances) 18a/Ca
SPIRAFLO (sewage treatment system).30e/Ye
SPIRAHOFF (sewage treatment system) 30a/Ye
SPIREX (sash balances) 18a/Ca
SPLEN-DOOR (folding doors) 16e/Sp
SPONGEX (carpet cushions) 13L/Go
SPORTSLIGHTER (floodlights) 33a/Sto
SPOT MUZAK (self-contained music distribution systems) 34a/Mu
SPOTTY (lighting fixtures) 33a/Cu
SPRATOWER (cooling towers) 30b/Ma
SPRAY CRAFT (sprayed-on insulation).10a/Aa
SPRAY-DAY-LITE (enamel) 15/GLi
SPRAYCRAFT (sprayed on fireproofing insulation) 10a/Sm; 12e/Sm
SPRAYDON (insulation and acoustical treatment) 11a/Sp
SPRAYOLITE (acoustical plaster) 12e/Na
SPRED (filler, paint) 15/GLi
SPRINGLAWN (carpet cushions) 13L/Go
SPRINGWOOD (resilient floor system).13J/Sp
SPUN-BLANKET (insulation) 10a/Ba
SPY-PROOF (lock dials) 18f/Sa
SQUARE-RIB (corrugated sheets) 8b/Sm
SQUAREFORM (steel forms for concrete) 2a/Sm
SQUAREHED (nails) 18a/In
SQUIRE (toilet bowls) 27a/Bri
STA-DRI (masonry treatments) 9/Am
STA-KOLD (refrigerators) 26a/Vi
STA-LITE (acoustical tile) 11a/Wor
STA-PUT (lighting fixtures) 33a/Ve
STA-RITE (wood doors) 16h/Ri
STA-SEAL (shingle sealing tabs) 8c/Ca
STACKDOOR (sliding doors) 16e/Am
STACK-FAST (clothes stackers) 27g/Tr
STAFFORD (lavatories) 27a/Ct
STAIN-SHIELD (range hoods) 26c/To
STAIR-CHAIR (passenger elevators)...24a/Se
STAIRMASTER (stair treads) 13b/Wo
STALLPACK (toilet enclosures) 22b/Ca
STAN-GUARDS (finger guards) 18e/Sta
STANDARD (conveyors) 24d/St
STANDARD (fire protection equipment) 30f/St
STANDARD (heating and air conditioning equipment) 31a/Ame
STANDARD (open web steel joists) 2f/St
STANDARD-FLUSH (wood doors) 16c/Ha
STANDARD LINE (bathroom cabinets, accessories) 27d/Pa
STANDEASE (mats and runners) 13i/Ar
STANSEAL (weatherstripping) 3f/St
STANSTRIP (weatherstripping) 3f/St
STANWIN (casement windows) 17b/Fe
STAR (locks) 18e/Sc
STAR (gauging plaster) 12e/Un
STAR (floor finishes) 13m/Hi
STAR-LINER (lighting fixtures) 33a/Mi
STAR LUX (lighting fixtures) 33a/Cu
STARFIRE (wall tile) 3c/Be
STARDUST (plastic flooring) 13i/Am
STARFOLD (accordion doors, partitions) 16e/Cu
STARKOTE (glazed tile) 4f/St
STARLITE (sinks) 25b/ELk
STASO (glazed brick) 4f/Ce
STATIC (asphalt) 8a/FL
STATIC CONDUCTIVE (linoleum) 13i/Co
STATICK (power ventilator) 20c/Hi
STATITE (plaster bond) 9/Aq
STAXAUSTER (ventilators) 20c/AL
STAY-LEVEL (toilet compartment doors) 22b/Ac
STAY-RIB (lath) 12a/In
STAY-RIB (steel forms) 2a/In
STAY-STRATE (flush doors) 16c/Un
STAY-STRATE (partition doors) 22a/Uni
STAYBRITE (mortar colors) 9/Ho
STEAM-CHEF (steamers) 26c/CL
STEAM-IT (pressure cookers) 26c/Ma
STEAM-THRIFT (steamer kettle) 26c/CL
STEAMCRAFT (steamers) 26c/CL
STEAMCRAFT CUB (steamers) 26c/CL
STEAMLINER (steamers) 26c/CL
STEAREX (concrete waterproofing agent) 9/Con
STEARONIUM (admixtures) 13h/Pr
STEAROX (admixtures) 9/Mas
STEEL-CEIL-CRETE (floor decking) 23f/Ar
STEEL-CEIL-RITE (floor decking) 23f/Ar
STEEL-LINE (sliding door hardware)..18e/Ya
STEEL-PLY (concrete forms) 2i/Sy
STEELACOUSTIC (acoustical panels) ..11a/Ce
STEELBESTOS (protected metal) 3a/Bo; 8b/Bo
STEELCO (bleachers and grandstands).23J/Es
STEELCRAFT (door and frames) 16b/Ste
STEELCRETE (reinforcing) 12a/Wh
STEELDEK (structural sections) 2f/Pe
STEELDOME (concrete forms) 2a/Ce
STEELECO (window shades) 19c/St
STEELEX (movable wall partitions)...22a/Ga
STEELEATHER (window shade fabric)..19c/St
STEELITE (folding doors) 16e/CL
STEELOX (steel building panels).....2J/Ar
STEELTEX (floor lath) 2a/Pit
STEELTEX (metal lath) 12a/Pi
STEEP (roofing asphalt) 8a/Ce
STEINER (washroom service and equipment) 27e/St
STELECRETE (sound-retarding doors) ..16m/Fi
STELLAR (lavatories) 27a/Cr
STEP-SEAL (vinyl door sealer) 19b/Dur
STEPLAP (plastic panels) 7d/AL
STERI-FLO (drinking fountains) 30d/Fi
STERLING (chalkboards) 23e/We
STERLING (lavatories) 27a/Cr
STERO (commercial dishwashing machines) 26b/St
STEWART (lavatories) 27a/Ca
STIC-KLIP (soap dispenser adhesive)..27e/Vo
STIKTITE (corkboard adhesive) 23e/Lo
STILE-MATE (window slider) 18a/Gr
STILES-KARLSON (automatic dispensers) 30b/St
STONCO (lighting fixtures) 33a/Sto
STONE-BESTOS (chalkboards) 23e/Ne
STONEBROOK (shower cabinets) 22b/FL
STONESET (portland cement) 4i/Me
STONINGTON (locks) 18e/Sa
STONEWALL (asbestos panels) 8c/Ru
STOP-STEP (step ladder) 23i/Cr
STOPS RUST (primers) 15/Ru
STOR-A-TERIA (food storing and serving units) 26d/Li
STOR-MOR (book drawers) 23f/Am
STOR-O-WHEEL (food storing, conveying, serving units) 26d/Li
STORAGEWALL (cabinets) 23i/Sto
STORM KING (roofing) 8a/Ba
STRAN-STEEL (steel framing, decking, curtain wall panels) 2f/Str
STRATAPANEL (plastic storage system).23c/Sc
STRATO-GLOW (lighting ware) 33a/Em
STRATO LUX (lighting fixtures) 33a/Cu
STRATO-RAY lighting glass) 33a/Em
STRATTON (sinks) 27a/Ri
STREAM FLOW GRATING (catch basin heads, frames, gratings) 6i/Ca
STREAMLINE (copper tube and fittings) 29a/Mu
STREAMLINER (registers, grilles) 31f/Au
STRIA (acoustical tile)....11a/Ow; 33b/Ow
STRIATONE (mineral fiber tile) 11a/Ce
STRIP-CLIP (partition fittings) 22a/Pan
STRIP-ITE (corner reinforcements) ...12a/Tr
STRIPITE (diamond mesh lath) 12a/Wh
STRIPITE (metal lath) 12a/Bo
STRIPLATH (metal lath) 12a/Un
STROMBERG-CARLSON (inter-communicating systems) 34a/Str
STRONG-TIE (anchors, joist hangers, etc.) 2i/Si
STRONG-WALL (sheathing) 10a/Ce
STRONGBORD (sheathing) 10a/Jo
STRONGHOLD (nails) 18a/In
STRONGMAN (clothesline poles) 2i/Ho
STRUCSURESEAL (sealing, caulking compounds) 3f/Pre
STRUCTO-BOARD (chalkboards) 23e/Go
STRUCTO-GUAGE (gauging plaster) 12e/Un
STRUCTO-LITE (gypsum plaster) 12e/Un
STRUCTOBOARD (hardboard) 10a/Uni
STRUCTOGLAS (plastic panels) 7d/In
STRUCTOSEAL (clear mastic) 7d/In
STRUCTUR-ACOUSTIC (acoustic roof forms) 2c/Gra; 2c/Grn
STRUCTURALITE (glass) 7a/Mi
STRUTWALL (wood window walls) ..17c/An
STRYTEX (asbestos shingles) 8c/Ke
STUCCOMESH (stucco reinforcing) ...12a/Un
STUDLOCK (clip system) 12a/Pe
STURDEE (diving stand) 23k/Par
STURDI-DOOR (doors) 16b/Amw
STURDIBILT (sinks) 25b/ELk
STYLE-LINE (dressing compartments)..22b/Pri
STYLE-TREND (flush doors) 16c/Cu
STYLINE (wall panels) 3a/Wa
STYLMARK (rolling door hardware; mirror, picture frames) 18g/De
STYLTONE (acoustical tile) 11a/Ba
STYROFOAM (insulation) 10a/Do
STYROFOAM (low temperature insulation) 10a/Dow
SU-WIN-CO (louver jalousie) 17a/Sup
SUBKOTE UNDERLAYMENT (latex floor underlayment) 13i/Cr

trade names

SUBURBAN (asphalt shingles) 8c/Ru
SUBURBAN (garage doors) 16i/Be
SUBURBAN (lighting fixtures) 33a/MiL
SUBVEYOR (dish conveyors) 26d/OL
SUDS-MISER (washers) 25a/Wh
SULTAN (toilet bowls) 27a/Bri
SUMMERFLO (controls, valves) 31i/De
SUMMIT (lavatories) 27a/Ri
SUMMITVILLE REDS (quarry tile) ...13c/Sum
SUN-PROOF (paint) 15/Pi
SUN-TRON (radiant heating panels)..31h/Su
SUN VALLEY (air conditioners) 31a/Ar
SUN VERTIKAL (vertical blinds) 19d/Su
SUNFLEX (paint) 15/Nat
SUNLIGHT (aluminum windows) 17a/Su
SUNLINE (hardboard panels) 8b/Ma; 8b/Mas; 14d/Mas
SUNNYBASE (baseboard heating) ...27a/Cr
SUNNYCREST (sinks) 27a/Cr
SUNNYDAY (boilers, sinks) 27a/Cr
SUNNYSAVER (heaters) 27a/Cr
SUNNYLAND (furnaces, air conditioners) 27a/Cr
SUNNYWALL (baseboard heating) ...27a/Cr
SUNRAY (linoleum) 13i/Co
SUNROC (water coolers) 30d/Su
SUNSCREEN (screens) 19e/Re
SUNTILE (ceramic tile) 13c/Ca
SUNTROL (glass blocks) 3e/Pi; 7b/Pi
SUNWALL (aluminum windows, curtain walls) 3a/Su
SUPER (dishwashers) 26b/In
SUPER BAR (guard windows) 17b/Ba; 17b/Baz
SUPER CAM (refrigerator door operators) 23c/Bu
SUPER-EX (corner beads) 12a/In
SUPER-FI (fiberglas) 7d/Fi
SUPER-FLO (floor drains) 30g/Jo
SUPER-FREEZER (freezer doors) 23c/Ja
SUPER-FREEZER (cold storage room doors) 23c/Bu
SUPER G (fry kettles) 26c/To
SUPER-GRIND (food waste dispensers) 25a/Gen
SUPER-GRIT (stair treads) 13b/Wo
SUPER HIL-BRITE (floor wax) 13m/Hi
SUPER-HIL-TONE (floor dressing) 13m/Hi
SUPER HILCO-LUSTRE (floor polish)..13m/Hi
SUPER-HOLD (wood windows) 17c/Car
SUPER-LIFT (wood windows) 17c/Car
SUPER-MATIC CALROD (ranges) 25a/Hot
SUPER-MIX (masonry treatments) 9/Co
SUPER-ONEX-SEAL (floor sealers) 13m/Hi
SUPER-SEAL (door fasteners) 23c/Bu
SUPER-POR-SEAL (coatings) 9/Tru
SUPER-POR-SEAL (masonry sealer) ...15/Dev
SUPER-POWER JOBMASTER (fastening tools) 2i/Ram
SUPER POWERHOUSE (insulating cement) 10c/BaL
SUPER RESISTANT (guard windows) 17b/Ba; 17b/Baz
SUPER SATIN SURFACE (flush wood doors) 16c/Ge
SUPER-SEPTIC (septic tanks) 30h/Ka
SUPER SHINE-ALL (floor cleaners) 13m/Hi
SUPER SKY (aluminum and glass skylights) 20b/Su
SUPER-THERM (wood windows) 17c/Car
SUPER THERMO-BASE (baseboard cooling, heating) 31f/Ger
SUPER-THICK (mineral wool batts)..10a/Na
SUPER TOXLOXPORE (masonry treatments) 9/To
SUPER TUFF-TEX (greaseproof floor tile) 13i/FL
SUPER 2600 CALROD (ranges, ovens) 25a/Hot
SUPER-WAY (wood doors) 16h/Ri
SUPERANGE (commercial ranges)....26c/Hot
SUPERANGE (electric ranges) 25c/Hot
SUPERCHIEF (commercial ranges)....26c/Hot
SUPERFLEX (linoleum backing) 13i/Co
SUPERFLO (continuous gravity, roof ventilators) 20c/Va
SUPERFLO (roof ventilators) 20c/Va
SUPERGRID (commercial ranges) 26c/Hot
SUPERHEAT (commercial ovens) 26c/Hot
SUPERIOR (concrete accessories) 2i/Su
SUPERIOR (fire shutters) 16g/Ki
SUPERIOR (wirework) 22f/Su
SUPERIOR TYPE (double hung windows) 17b/Po
SUPERITE (chalkboards) 23e/Ed
SUPERLINE (commercial cooking equipment) 26c/Hot
SUPERMATIC (washers, dryers) 25a/May
SUPERSANITAS (plastic-coated fabric wall covering) 13k/St
SUPERSEAL (waterproofing fabrics) 9/Mi
SUPERSINE (signs) 6f/Su
SUPERSPAN (concrete channels) 2d/Ra
SUPERTEX (shades) 23e/Be
SUPERTOP (commercial ranges) 26c/Hot
SUPERWALL (window walls) 17a/Sup
SUPERWOOD (plastic laminates) ...14a/Par
SUPEX (water repellent) 9/Wa
SUPRACOUSTIC (acoustical tile) 11a/Ce
SUPRATEXT (laminated safety glass)...7a/Am
SUPREX (plastic tile) 13i/Go
SURE-GRIP (anchors, ties, masonry construction accessories) 2i/Da
SURE-LOK (awning windows) 17c/Ro
SURE-LOK (masonry reinforcement) ...2i/Da
SURE/POWER (generator sets) 32c/AL
SURE-SET (tile backing) 13c/Sty
SURE-SPACE (tile lugs) 13c/Sty
SURESEAL (curing compounds) 9/Ce
SURE-FORM (concrete form panels)....5b/Un
SURFA-ETCH (concrete neutralizer) 15/Ru
SURFA-SELE (sealers) 15/Ru
finish) 8c/Na
SURFACEDUCT (steel surface raceway) 32b/Na
SURFCOAT (floor sealers, finishes) 13m/Hi
SURFHARD (hardener) 9/Eu
SURFLEX (hardener) 9/Eu
SURFLINER (lighting fixtures) 33a/We
SURFPLANK (solid lumber panels) 5b/Un
SURFTONE (wall panels) 10a/Ce
SURFWOOD (plywood panels) 5b/Un
SUSSEX (asbestos-cement siding).....8c/Na
SUSSEX (locksets) 18e/Sc
SWAN NECK (remote controls for windows) 18b/Te
SWIF-WAY (tile mounting) 13c/Mos
SWING-O-WAY (exhaust systems) ..20c/Amm
SWINGLITE (window operators) 18b/De
SWIRL-AWAY (washer draining action) 25a/May
SWITCH-BAK (shower) 27b/Sp
SYENITE (glass) 7a/Mi
SYLVA-CELL (lighting system) 33a/Sy
SYLVA-LUME (lighting systems) 33a/Sy
SYLVAN-AIRE (plastic lighting ware)..33a/Sy
SYLVANIA VHO (lamps, lighting fixtures) 33a/Sy
SYNCHROVENT (projected windows).17a/Fen
SYNTHACALK (caulking compounds)...3f/Pe
SYOSSET (plastic diffusers).....33a/Lin
SYPHONAIRE (ventilators) 20c/We

t

T & S (cocks, faucets, fittings, valves).27b/Ta
T & T (building directories) 23a/Ta
T & T (changeable letter signs) 23a/Tab
T-CHORD (longspan joists) 2f/Ha
T-METAL (zinc alloy sheet metal) 6b/Hy
TV FABRIC (drapery fabric) 19c/Ri
TABASCO (water heaters) 31a/Ame
TAC (building panels) 2c/Fe
TAC-AC (acoustical panels) 2c/Fe
TAC-ON (corkboards) 23e/We
TAC-T (troffer panels) 2c/Fe
TAC-TEX (tackboards) 23e/Ko
TALC (windows) 17a/Tr
TANALITH (wood preservatives) 5d/Ko; 5d/Kop
TANC-TYP (soap dispensers) 27e/Mo
TANK-COTE (tank lining) 13h/Pr
TAPE-R-TRACK (overhead door tracks) 16i/Win
TAPER TITE (garage door track) 16i/Ro
TAPERSTEEL (flagpoles) 6g/No
TAPERWELD (pipe, pipe fittings) 29a/Or
TAPESTRY (structural glass) 7a/Pi
TAR-ROK (tar) 8a/Ba
TARA-FLOR (rubber flooring) 13i/Ra
TARVIA (road tar) 8a/Ba
TASTE-MASTER (water filters) 30d/Fi
TATE (pipe linings) 1a/Ra
TECO-TESTED (plywood) 5b/Te
TECTUM (acoustical ceiling panels) ...11a/Te
TECTUM (form plank) 2a/Te
TECTUM (roof tiles, planks).....2d/Te
TEEKORATOR (incinerators) 28a/Sp
TEKWOOD (hardwood veneers) 5b/Un
TEL-A-COOK (range lights) 25a/Gen
TEL-O-POST (adjustable reinforcing posts) 2i/CL
TELCO (pass windows) 16g/Pei
TELE-POWER (dual raceway systems).32b/Wi
TELEFLEX (remote controls for windows) 18b/Te
TELENURSE (nurse call systems) 34a/Pe
TELKEE (key control systems) 18e/Moo
TELLERWAITER (dumbwaiters) 24a/Ch
TEL-U-MAT (signaling mats) 13i/Ar
TEMEDGE (pattern glass) 7a/Am
TEMLOK (roof insulation) 10a/Ar
TEMPCO (shower valves) 27b/Te
TEMPERED PRESDWOOD (chalkboards) 23e/Go
TEMPGARD (aluminum paint) 15/Moo
TEMPLITE (church lighting) 33a/Ra
TEMPO (bathroom accessories) 27d/Ha
TEMPO (lockset) 16b/Ce
TEMPO (steel chairs) 23o/Ha
TEMPRITE (water coolers) 30d/Te
TEMPRTILE (hardboard panels) 8b/Mas; 14dMas
TEMPTROL (thermostatic shower controllers) 27b/Sy
TENNQUARTZ (quartzite) 4c/Ten
TENSILFORM (concrete forms) 2a/Wh
TENSILFORM (floor slab form) 12a/Wh
TERMIBAR (termite vapor barriers).....8h/Bi
TERMINIX (termite control) 13J/Bru
TERRAFLEX (plastic floor tile) 13i/Jo
TERRALAST (plastic tile) 13i/Vi
TERRATEX (vitrified floor tile) 13c/Lo
TERRAVINYL (floor tile) 13i/Mat
TERRAVINYL (vinyl floor tile) 13i/Mas

TERRAZEAL (terrazzo floor sealers) ...9/Wes
TERRAZZINE (floor treatments).....13m/Hi
TERRAZZOTREM (terrazzo floor sealer)..9/Tr
TES-TITE (curtain walls, windows)....3a/Be
TEXAS TEXTURE (texturing materials).15/Nat
TEXBORD (hardboard siding, shingles) 10a/Ce
TEXCOLOR (hardeners) 9/Pa
TEX DRI-WALL (tile) 4f/Na
TEXLOC (carpet cement) 13L/Le
TEXOLITE (paint) 11a/Uni
TEXOLITE (paint products) 15/Un
TEX-STEELE (window shade fabric).....19/St
TEXTELLE (linoleum) 13i/Arm
TEXTOLITE (laminated plastic surfacing) 14a/Ge
TEXTOLITE (paint) 11a/Uni
TEXTONE (texturing paint) 15/Un
TEXTURE (texturing materials) 15/Nat
TEXTURE 1-11 (plywood) 5b/Si
TEXTURE-TONE (acoustic mineral tile) 11a/Ce
TEXTURED FLUTEX (pattern glass) 7a/Am
TEXTURED LINEX (pattern glass) 7a/Am
TEXTURLITE (shade cloth) 19c/Jo
TEXTURE-ONE-ELEVEN (plywood) 5b/Do
TEXWEAVE (asphalt-asbestos floor tile) 13i/FL
TEXWOOD (asphalt-asbestos floor tile) 13i/FL
THEMETILE (decorative tiles) 13i/Ke
THERM-A-LITE (insulated plastic panels) 20a/Bo
THERM-ARTEX (panels) 17a/Art
THERM-L-BAR (skylight condensation deterrent) 20a/Wa
THERM-O-LUX (triple-wall shade fabric) 19c/He
THERMACOUSTIC (sprayed-on mineral wool) 11a/Na
THERMAL-ACOUSTI (curbs for ventilators) 20c/Va
THERMALITE (high temperature insulation) 10c/BaL
THERMASIL (high temperature insulation) 10c/BaL
THERMAVENT (roof ventilators) 20c/Bu
THERMIDAIRE (furnaces) 31b/Ca
TERMINIX (termite control) 13J/Bru
THERMO-BASE (baseboard cooling, heating) 31f/Ger
THERMO-BASE (warm air baseboards) 27a/Cr
THERMO-BLOC (perimeter insulation) 10a/Na
THERMO-BORD (insulating panels)...8b/Car
THERMO-BORD (structural insulating panels) 8a/Ca
THERMOGUARD (cooler controls) ..30d/We
THERMO-VECTOR (radiation) 31a/Dun
THERMO DOOR (insulated sliding) glass doors) 16d/Ado
THERMO-VUE (windows) 17a/Am
THERMOFLOW (roof ventilators) 20c/We
THERMOPANE (insulating glass) 7a/Li
THERMOTEX ("B" emulsion) 8a/Ca
THER-MO (built-up roofing) 8a/Th
THESSCO (wardrobes) 23d/Sc
THIN-CELL (louvers) 33a/Sin
THIN-SET (ceramic tile setting method) 13c/Mir
THINLINE (air conditioners) 25a/Gen
THINLITE (glass curtain wall panels).3e/Ow
THIOKOL (polysulfide-based sealents)..7c/Th
THIOSEAL (caulking compound) 13h/Pr
38 (wood primer, varnish) 15/Pr
THORITE (masonry treatments) 9/St
THOR LUND (dumbwaiters, sidewalk elevators) 24a/Lu
THORO (masonry treatments) 9/St
THOROBOND (bonding agent) 9/St
THOROCLEAR (masonry treatments) 9/St
THOROLITH (masonry treatments) 9/St
THOROLOK (masonry treatments) 9/St
THOROSEAL (masonry treatments) 9/St
THOROSET (masonry treatments) 9/St
THOROSHEEN (masonry paint) 9/St
THREDLOCK (reflectors) 33a/Mu
3M (adhesives, sealers) 13i/Mi
3M (compound mixers) 3f/Mi
THREE-TWENTY (adhesive) 13i/Co
THRIFTI-TOWER (cooling towers) ..31a/Mar
THRIFTPAK (caulking compounds) 9/Ho
THRIFTY (bathroom accessories).....27d/Mi
THROUGH-WALL (flashings) 8b/Am
THRU-THE-WALL (chute doors) 27f/Wi
THRU-VU (vertical blinds) 19d/Th
THRU-WALL (brick vents) 2i/Ho
THULMAN (chimneys, fireplaces) 31L/Ma
TI-CO (galvanized steel) 2b/In; 2c/InL; 12a/In
TICKAWAY (electic scoreboard clock).23k/Fa
TICOTHERM (steam generators) 31g/Ti
TIE-TO (contact ceiling inserts) 2a/Fa
TIGER BRAND (lime products) 11a/Tig
TILE-MATE (clay tile mortar, grout, sealer) 13c/Upc
TILE-SET (ceramic tile grout) 13c/Ka
TILE-STIK (cement base ceramic tile adhesives) 13c/Pe
TILE-TEX (floor tile) 13i/FL
TILE-WELD (bonding agent) ..4i/La; 12e/La
TILT-A-FRONT (store fronts) 16b/Ov
TILT-UP (slab braces) 2i/Su
TIM-BER-LOX (wood sealer, preservative) 15/Na
TIM-DECK (roof decking) 2e/Tim
TIM-FLAT (laminated arches, trusses)..2e/Tim
TIM-TRUSS (laminated arches, trusses) 2e/Tim
TIME SAVER (bathroom accesories)...27d/Mi
TIME-SAVER (stair tread anchors) ..13b/Wo
TIME-SAVER (valves) 27b/Sp
TITAN (boilers) 31g/Ti
TITAN (locksets) 18e/Co
TITANIC (paint) 15/Pi
TITE-CRETE (concrete grout additive)..15/Su
TITE-ONS (asphalt shingles) 8c/Ru
TITEWALL (joint sealers) 2i/Se
TITEWALL (rubber control joints) 4h/Aa
TNEMEC (rust-resistant primers) 15/Tn
TOASTMASTER (electric cooking equipment) 26c/To
TOBEX (pattern glass) 7a/Am
TOCKOLITH (metal paint) 9/To
TOGGLE-JACK (mounting device for lighting fixtures) 33a/Go
TOLEDO (food service equipment)....26b/To
TOM THUMB (curtain machinery) 23g/Au
TOM THUMB (motor drives for shutters) 16g/Cor
TONETEX (carpets) 13L/Le
TOPPER SWITCH (switches) 32b/Hu
TOPSEAL (fastening systems) 8b/Fa
TOROPLY (wood paneling for partitions) 22d/To
TORSIONTITE (lighting fasteners) ...33a/Lia
TOSCAN (sinks) 27a/Ri
TOWELINK (bathroom accessories) ..27d/Mi
TOW'LESCOPE (utility bars) 27d/Ha
TOWL-TOWER (paper towel holders)..27e/Cr
TOWNE (paint) 15/Nat
TOWNSEND (lockbolts, rivets, etc.)...8b/To
TOX-SHADE (sun control) 9/To
TOXEMENT (admixtures) 9/To
TOXGRIP (hardeners) 9/To
TOXIK (wood preservative) 13J/Bru
TOXKURE (curing compounds) 9/To
TOXLOXPORE (masonry treatments) 9/To
TOXMIX (admixtures) 9/To
TRADE-WIND (blowers) 31e/Tr
TRAFFIC SENTINEL (elevator operator) 24a/We
TRAK-EZE (drapery tracks) 23g/Au
TRANSAIRE (roof ventilators) 20c/We
TRANSITE (acoustic panels) 11a/Jo
TRANS-O-MATIC (ramp) 24a/GL
TRANSI-FOLD (folding tables, benches) 23i/Sc
TRANSITE (asbestos panels) 22a/Jo
TRANSITE (corrugated asbestos panels) 8b/Jo; 8b/Joh
TRANSITE (corrugated roofing) 8a/Jo
TRANSITONE (movable walls) 22a/Jo
TRANSWALL (folding doors, partitions) 16e/Tr
TRAVACOUSTIC (acoustical tile, mineral wool) 11a/Na
TRAVEL MUZAK (music for trains, planes, ships, etc.) 34a/Mu
TRAVERTONE (acoustical materials) ..11a/Ar
TRAYLIFT (food conveyors) 24d/St
TRAYLOR (sinks, laundry trays) 27a/Ri
TRAYVEYOR (food service conveyors).24a/La
TREAD-O-MAT (carpet moulding) 18e/Tr
TREAD-O-MATIC (automatic door and gate controls) 18e/Tr
TREADWAY (gratings) 13a/Pe
TREE LIFE (plywood) 2i/Sai
TREMCO (caulking, pointing compounds) 3f/Tr
TREMCO (floor hardeners, sealers, etc)..9/Tr
TREMCRETE (concrete floor curer, sealer) 9/Tr
TREMGLAZE (glazing compounds) 3f/Tr
TREMSEAL (wood floor hardener, sealer).9/Tr
TREMSEAL-20 (concrete floor hardener, sealer) 9/Tr
TREMTAPE (mastic sealers) 3f/Tr
TREMTHOL (mastic compound) 3f/Tr
TREMTOP (coating for asphalt) 9/Tr
TRENDWOOD (wood-grain finishes).14b/Ma
TRESSCO (wardrobes) 23d/Sc
TRETINT (colors) 9/Tre
TRETOCALK (caulking compound).....9/Tre
TRETOCLEVE (concrete bond breaker, membrane sealing compound) 9/Tre
TRETOCONE (water-repellents) 9/Tre
TRETOCONE DECRACOAT (latex silicone water repellent) 9/Tre
TRETOCURE (curing compounds) 9/Tre
TRETOFLEX (asphalt foundation coating) 9/Tre
TRETOMENT (plasticizing admixture)..9/Tre
TRETOP (metallic topping) 9/Tre
TRETOSCREED (resurfacer) 9/Tre
TRETOSHED (bituminous foundation coatings) 9/Tre
TRETOSKALE (surface retarder) 9/Tre
TRETOSURF (aggregate topping) 9/Tre
TRETOTRED (plastic anti-slip material).9/Tre
TRETSET (hydraulic cement) 9/Tre
TRI-CORE (electric panel heating systems) 31h/EL
TRI-FILTER (underdrains) 4f/Na
TRI-RIB (steel roof deck) 12a/Wh

trade names

TRI-SAVER (coffee system) 26d/BL
TRIBRIC (brick, tile) 4f/St
TRIM-LINE VIT CAP (ceramic trimmer).13c/Po
TRIMIX (anti-freeze admixture) 9/So
TRIMLESS (fire hose cabinets) 30f/St
TRIMLINE (aluminum curtain walls)...3a/Am
TRIMLINE (aluminum entrances) 16a/Am
TRIMLINE (convectors and covers)....31h/Vu
TRIMLINE (lavatories) 27a/Ri
TRIMLINE (surface mounted door closers) 18e/No
TRINITY WHITE (white portland cement) 4i/Ge
TRIO (windows, doors) 17a/Tr
TRIPL-AIRE (registers and grilles) 31f/Har
TRIPLE-COVER (house paint) 15/Dev
TRIPLE S (flush wood doors) 16c/Ge
TRIPLE-SEALED (roofing products)....10a/Ce
TRIPLE-TEMP (refrigerated display cases) 26a/Ty
TRIPLEX (door hardware) 18e/Chi
TRIPLEX (tub enclosures) 27c/Ef
TROFFERDUCT (lighting fixtures) 33a/Wh
TROFFERETTE (lighting fixtures) 33a/En
TROFFERVENT (lighting fixtures) 33a/Wh
TROJAN (boilers) 31g/Ti
TROJAN (clothes washers) 27g/Tr
TROJAN (water closets) 27a/Ca
TROPHY (gym floor finishes).....13m/Hi
TROPHY SEAL (gym floor sealers) 13m/Hi
TROPICRAFT (woven wood fabrics) ..19d/Tro
TROUBADOOR (door chimes) 27d/Mi
TROY (laundry machinery) 27g/Tr
TRU-BOW (wood bow windows) 17c/Re
TRU-CURE (cement curing) 9/Tru
TRU-LUX (chalkboard panels) 23e/Lo
TRU-ROLL (stage track and equipment) 19d/Ma
TRU SCREED (screeds) 2i/Su
TRU-SEAL (aluminum windows, curtain walls) 17a/Va
TRU-SEAL (concrete curings, hardeners, sealers) 9/Tru
TRU-SEAL (waterproofing sheet) 8g/Ru
TRU-SITE (glass treatment) 7a/De
TRU-SNAP (chalkboard trim) 23e/Lo
TRU-VY-KOTE (coatings) 9/Tru
TRU-WALL (wood windows) 17c/Re
TRUAIRE (ventilating windows) 17b/Tr
TRUBRAE (floor plates, treads) 13b/Wh
TRUBRON (floor plates, treads) 13b/Wh
TRUCK LEVELER (truck lift) 24a/GL
TRULOCK (aluminum detention screens) 19a/Ba
TRULUM (floor plates, treads) 13b/Wh
TRUNIC (floor plates, treads) 13b/Wh
TRUS-LOK (lath clips) 12a/Un
TRUSS-LOOP (metal lath) 12a/Bo
TRUSS-SKIN (trussless roof construction) 2e/Wo
TRUSS-WING (corner beads) 12a/Bo
TRUSSBILT (metal doors) 16b/Tru
TRUSSCORE (metal doors) 16b/Tru
TRUSSTEEL (studs) 12a/Un; 12c/Uni
TRUTRED (floor plates, treads) 13b/Wh
TRUVISION (illuminator) 23L/Ge
TUB-CAULK (caulking compounds)...13c/Mir
TUBE-LINE (railings) 6e/BLu
TUBELITE (doors, door frames) 7a/Pi
TUBELITE (tubular aluminum doors) ...16a/Pi
TUBE SET (store fronts) 16a/Br
TUBULAR (concrete filled columns)....2g/Tu
TUF-FLEX (glass doors) 16d/Lib
TUF-FLEX (plate glass, doors) 7a/Li
TUFCOR (steel forms) 2c/Grn; 2a/Gr
TUFF-BOND (adhesives and sealers).10a/Mo
TUFF-DRY (floor finish) 13m/Mu
TUFF-TEX (greaseproof floor tile).....13i/FL
TUFF-TITE (fasteners) 8b/To
TUFF-WELD (nylon hanger system)...10a/Mo
TUFFGARD (house paint) 15/Moo
TUFFLEX (point sealers) 2i/Se
TUFLEX (rubber tile) 13i/Ge
TULIP (locks, lock escutcheons) 18e/Sc
TURBOVANE (fans) 31a/We
TURBULATOR (air diffusers) 31f/An
TURNETTE (bathroom accessories)....27d/Mi
12-VENEER (ceramic tile) 13c/Sum
TWIN (range, oven, sink units).....25b/Ge
TWIN-AIR-MIX (incinerator burners).28a/Oh
TWIN ANCHOR (terrazzo dividers).13g/Ma
TWIN-BEAM (church windows) 17a/In
TWIN-CAVITY-MESH-LOCK (reinforcing) 4h/Ho
TWIN-L (balancing valves) 31i/Th
TWIN-LITE (lighting glass).....33b/Co
TWIN-MESH-LOCK (reinforcing) 4h/Ho
TWI-NIGHTER (venetian blinds) 19d/Br
TWIN-ROLLORS (door guides).....16i/Mc
TWIN-SERV (soda fountains) 26b/Ba
TWIN-TILE (insulating panel tiles)..10a/Uni
TWIN-T-MASTIC (insulating tape) 7c/Di
TWIN-TRIM (plastic mouldings) 14a/Co
TWINDOW (insulating glass) ...7a/Pi; 21/Pi
TWINDOW (window panes) 3e/Pit
TWINDUCT (raceway systems) 32b/Na
TWINLINE (air conditioners) 31a/Yk
TWINLITE (awning windows) 17c/RoL
TWINSTILE (glass doors and frames)..16d/Sc
TWINSUL (double-glazed windows).17a/Sou
TWINSULATION (blanket insulation) .10a/Na
TWIST-LOCK (wiring devices) 32b/Hu
TWO FOL (folding benches, tables) ...23i/Ro
TWO-TEMP (water heater valves) 30c/Ru
TY-CHAIR (concrete reinforcing) 2i/Ri
TY-FRAME (anchors) 2i/Ri
TY-SCRU (inserts) 2i/Ri
TY-TITE (bar ties) 2i/Ho
TYE-BLOC (wall reinforcing) 2i/Gat
TYCONE (anchors) 2i/Ri
TYLAC (anchors) 2i/Ri
TYLER (refrigerators, storage freezers) 26a/Ty
TYLER-KETCHAM (color compatibility systems) 26a/Ty
TYLOOP (form hangers) 2i/Ri
TYTE-SEAL (masonry treatments) 9/We
TYTESET (bathroom accessories).....27d/Ke

U

U.S. AIRMASTER (carpet cushions)....13L/Un
U.S. AIRWAVE (carpet cushions) 13L/Un
U.S. JUNIOR (carpet cushions—non-skid) 13L/Un
U.S. LUXURYLINER (carpet cushions)..13L/Un
U.S. MAINLINER (carpet cushions) ...13L/Un
U.S. MARVELAIRE (carpet cushions)...13L/Un
U.S. ROYAL (carpet cushions) 13L/Un
U.S. WAFFLE (carpet cushions) 13L/Un
USF (metal doors and frames).....16b/Un
USF (vibration absorbers) 29a/Ke
USG (acoustical materials).11a/Un; 11a/Uni
USG (expanded metal) 6e/Un
USG (gypsum, metal lath) 12a/Un
USG (gypsum roof decks) 2d/Un
USG (gypsum sheathing, wall-board).12c/Uni
USG (insulation) 10a/Uni
USG (gypsum tile) 12c/Un
USG (lime, gypsum plaster) 12e/Un
USG (metal edge gypsum roof plank).2d/Uni
USG (metal grating) 13a/Un
USG (movable partitions) 22a/Un
USG (paint products) 15/Un
USG (steel roof decks) 2c/Uni
USL (extruded aluminum louvers) 20d/Un
USS (fencing) 22g/Cy
USS (steel joists).....2f/Am
UALCO (aluminum windows, curtain walls) 3a/Sou; 17d/Sou
ULTIMA (linoleum) 13i/Co
ULTRACOUSTIC (acoustical ceiling board) 11a/Gu
ULTRALAST (plastic tile) 13i/Vi
ULTRALITE (duct insulation) 10a/Gu
ULTRONIC (door operators) 16i/Ove
UNDERCHORD (bridging) 2f/Tr
UNDERFLOW (cooling towers) 30b/Ma
UNDERHILL (lighting fixtures) 33a/Wh
UNI-BILT (dumbwaiter doors) 24c/Se
UNI-BILT (dumbwaiter doors, frame units) 16h/Se
UNI-CHECK (door checks) 18e/Ri
UNI-CREST (insulation) 10a/Un
UNI-FLO (grilles) 31f/Ba
UNI-FRAME (lighting fixtures) 33a/Da
UNI-MOTOR (elevator doors).....24c/Se
UNI-RESONATOR (silencers) 11a/Ha
UNI-SILENCER (silencers) 11a/Ha
UNI-TRIM (exit device trim) 18f/Sa
UNI-VERSEN (lighting fixtures) 33a/Ve
UNI-WAITER (dumbwaiters) 27f/Wi
UNICOIL (heat transfer coils) 31a/CL
UNIFLEX (sash balance weatherstrip) 18a/Un
UNIQUE (sash balances) 18a/Un
UNIQUE (unique balanced vertical sliding chalkboards) 23e/Un
UNISTAK (prefabricated flues) 28a/Un
UNISTRUT (partitions) 22a/Ui
UNITROL (control centers) 32a/Cut
UNIT DECK (floor and roof deck)....2e/Un
UNIT DRIVE (industrial door operators) 16h/FL
UNIT-PANEL (partitions) 22a/Wh
UNIT-ROW (telephone booths) 34a/Su
UNITFOLD (folding partitions) 22d/Fa
UNITIZED (laboratory furniture) 23L/Fi
UNITIZED-FLEXI (steel shelving) 23f/Bo
UNITSLIDE (sliding partitions) 22d/Fa
UNITHERM (unit heaters) 31a/CL
UNITRON (carriers, closet fittings) ...30g/Jo
UNIVERSAL (bleachers and grandstands) 23J/Un
UNIVERSAL (concrete inserts) 2i/Ho
UNIVERSAL (partitions, walls) 22a/Jo
UNIVERSAL (steel casement windows) 17b/Wi
UNIVERSITY (loudspeakers) 34a/Un
UNIWALL (tile) 4f/Na
UPBLAST (power roof ventilators).....20c/Va
UPLIGHT URN (lighting fixtures) 33a/Ce
UPTON (water closets) 27a/Ri
URITO (urinals) .....27a/ Ri
USIC (destructors, incinerators) 28a/Un
UTIL-I-DUCT (duct-shelving sections).31h/No

V

V-BAK (tile) 13c/Mur
V-BEAM (steel beams).....2f/Ma
V-CORR (corrugated steel roofing and siding) 8b/Be
V-CORR (roofing, siding) 3c/Be
V-FORM (steel forms for concrete)..2a/Sm
V-GIRDER (steel girders) 2f/Ma
V-LINE (refrigerators) 26a/Vi
V-LOK (steel framing) 2f/Ma
V-PLANK (plywood panels) 5b/Un

V-RIB (corrugated sheets) 8b/Sm
V-T (soap dispensers, soap) 27e/Vo
V-WINDOWS (inswinging windows) ..3c/Ro
"VF" (window walls) 17a/ALw
VL (vinyl wall covering) 13c/Mu
VMP (partitions) 22a/Vi
VPI (plastic tile) 13i/Vi
VABAR (masonry treatments) 9/St
VACU-MASTER (vacuum cleaning systems) 28b/Va
VACU-MATIC (vacuum cleaning systems) 28b/Va
VACUMITE (swimming pool filters)..23k/Va
VALAY (toilet tissue, dispensers) 27e/Ste
VALCALOX (damper regulator) 31f/Yo
VALENCIA (floor tile) 13c/Lu
VAMPCO (aluminum entrances) 16a/Va
VAMPCO (aluminum windows, curtain walls) 3a/Va; 17a/Va
VAN (food service equipment) 26d/Va
VAN GUARD (garage doors) 16i/Cra
VANCO (aluminum and steel skylights) 20b/Va
VANCO (plastic dome skylights) ..20a/Van
VANCO (plastic skylights) 20a/Va
VANCO (roof ventilators) 20c/Va
VANCO (wall louvers, louver penthouses) 20d/Va
VANCOLUX (plastic skylights) 20a/Va
VANDL-RATOR (metered valves) 27b/Sp
VANGUARD (garage doors) 16i/Cra
VANGUARD (toilet compartments) ...22b/Sa
VANINET (bathroom cabinets) 27d/Mi
VAP-O-MATIC (refrigerator drain)....26a/Pu
VAPEX (flat wall finish) 15/Pr
VAPOLUX (lighting fixtures) 33a/Wh
VAPOR-CHAMP (vapor seals) 8h/Lu
VAPOR-TIGHT (lighting fixtures) 33a/Wh
VAPORLETS (vapor-proof lights) 33a/Sim
VAPORMATIC (food warmers) 26d/Ba
VARAVENT (reversible windows) 17a/Po
VARI-FLOW (heating controls) 31a/Dun
VARI-SPOT (lighting fixtures) 33a/Cu
VARI-TILE (ceramic tile) 13c/Un
VARI-VAC (differential heating) 31a/Dun
VARI-VENT (window operators) 18b/De
VARIETY (doors, frames, partitions, etc.) 16b/Va
VARITONE (unglazed tile) 13c/Am
VEEP (folding portable coat and hat racks) 23d/Vo
VELTONE (floor, wall coverings).....13i/Co
VELVATEX (structural tile) 4f/EL
VELVET (enamel, paint) 8c/Na; 15/Nat
VELVETEX (tile) 13c/Mos
VELVETONE (chalkboards) 23e/Ro
VELVETONE (tile) 13c/Mo
VELVEX (pattern glass) 7a/Am
VEN-TROL-GEAR (vent panel actuators) 18a/Gr
VENETIAN (bathroom cabinets) 27d/Co
VENETIAN (floor covering) 13i/Co
VENI-FLEX (folding doors, room dividers) 16e/Co
VENT-A-BATH (blowers) 25a/Em
VENT-A-LITE (fan and light) 25a/Nu
VENT BRICK (vent bricks) 20d/Ri
VENT-X-IT (roof ventilators) 20c/Oc
VENTAIR (ventilation windows) 17c/Wo
VENTDOME (skylights) 20a/Wa
VENTILATTIC (fans) 31e/Pe
VENTILOUVRE (ventilating louvers) ...20d/Ve
VENTROLITE (aluminum and steel windows) 17a/Se
VENTURA (fans) 31a/Am; 31a/Ame
VENTURAFIN (unit heaters) 31a/Am; 31a/Ame
VENTURI-FLO (diffusers) 31f/Ba
VENUS (locks) 18e/Sc
VER-TEL (telescoping doors) 16h/Se
VERDURA (paint) 15/Pr
VERI-THIN (stainless steel sheet) 6c/Wa
VERILUX (lighting fixtures) 33a/Wh
VERMARCO (marble) 4b/Ve; 13f/Ver
VERMARCO (marble tile) 13f/Ve
VERMARCO PANEL-WALL (marble curtain walls) 3e/Ve
VERMONT (colored slate) 8e/Ri
VERSAILLES (plastic floor tile) 13i/Bo
VERSALINE (lighting fixtures) 33a/MiL
VERSATILE WALL (curtain walls) 3c/Ro
VERSATOWL (towel dispensing device) 27e/Cr
VERSITILE (aluminum windows) 17a/Va
VERTI-COL (screw lift elevators) 24a/Ha
VERTI-GROOVE (hardboard siding panels) 10a/Ce
VERTI-SLIDE (aluminum windows) ...17a/Sou
VERTIFLOW (unit heaters) 31a/Yo
VERTISEAL (joint sealers) 2i/Se
VI NALL (exterior paint) 15/So
VI-PAK (plastic packaging solutions)...15/Su
VIBACALL (intercommunicating systems) 34a/Du
VIBRO-PRUF (anti-vibration grouting) ...9/La
VICTOR (shade cloth) 19c/Jo
VICTORIA (lavatories) 27a/Ri
VICTORY (fencing) 22g/Cy
VIDEOPLATE (chalkboards) 23e/Be
VIEW ALL (tie racks) 18g/Kn
VIEWALL (window walls) 17a/ALw
VIKING (shade cloth) 19c/Jo
VILLA (overhead type doors) 16i/At
VIMCO (refrigerators) 26a/Vi
VINA-FLO (interior paint) 15/So
VINA-LUX (plastic tile) 13i/Az
VINL-STOP (weatherstripping) 19d/Dur
VINYL-COTE (mastic) 15/GLi
VINYLAST (plastic tile) 13i/Vi
VINYLAY (elastic coating) 13h/Ce
VINYLBEST (floor coverings) 13i/Co
VINYLFLEX (plastic floor tile) 13i/Hak
VINYLUX (lighted ceilings) 33a/Di
VISCOUNT (toilet bowls) 27a/Bri
VISION-VENT (window walls) 3d/Tr
VISIONAIRE (lighting fixtures) 33a/Sun
VISITRON (lighting fixtures) 33a/Cu
VISKALT (roofing felts) 8a/FL
VISQUEEN (vapor barriers) 9/Vi
VISTA (glass curtain wall panels)....3e/Ow
VISTA-LITE (aluminum windows) ...17a/Am
VISTA-LINER (lighting fixtures) 33a/We
VISTA-LUX (translucent plastic panels).8d/No
VISTA-WALLS (aluminum windows) ..17a/Am
VISTALUME (lighting fixtures) 33a/Lie
VISTARAMA (venetian blind operators) 19d/Ku
VISUALITE (plastic skylights) 20a/Na
VISUALOCKER (steel lockers) 23d/Re
VISUMATIC (door controls) 18e/Vi
VITOBEST (chalkboards) 23e/We
VITOPREST (chalkboards, chalkboard cement) 23e/We
VITRACITE (chalkboards) 23e/CL
VITRALITE (enamel) 15/Pr
VITRAMIC (siding) 8c/Ru
VITRE-STEEL (toilet compartment finish) 22b/We
VITRIBRIK (ceramic glazed tile) 4f/Na
VIRTIFLEX (joint sealers) 2i/Se
VITRITILE (ceramic glazed tile) 4f/Na
VITRO-BOARD (chalkboards) 23e/Ed
VITRO GLAZE (spray-on cement) 13h/De
VITRO-MATIC (chalkboards) 23e/Go
VITROCK (porcelain enamel panel backing) 3c/Da
VITROLUX (glass curtain wall material).3e/Li
VITROLUX (plate glass) 7a/Li
VITRON (curtain wall spandrel material) 17a/Fen
VIZABLEDG (safety treads) 13a/Ir
VOLITE (enamel) 15/Dev
VOGUE (lavatories) 27aRi
VON DUPRIN (exit hardware) 18f/Vo
VUE (glass blocks) 3e/Pi; 7b/Pi
VUELINE (aluminum windows) 17a/Bay
VULCANOR (incinerators, destructors) 28a/Mc
VULCATEX (caulking compounds) 9/Ho
VY-NIL-COTE (vinyl coating) 13h/Pr
VYN-AL (red lead) 15/GLi

W

WB (rolling steel doors) 16g/Ba
WB (laboratory fixtures) 23L/Wo
W R C (lighting standards) 33c/Ry
WRDA (water-reducing admixture) 9/De
WSP (plywood) 5b/Do
W-W (curtain walls) 3a/Wi
W-W (windows) 17b/Wi
W-CANOPY (canopies) 19e/Ka
WACO (portable bleachers) 23k/Por
WADE (seal removers) 13m/Hu
WAFERLUME (lighting fixtures) 33a/Lie
WAL-DOR (insulated folding doors) 16e/CL
WAL-DOR (sound retarding doors)...16m/Fi
WAL-LOK (reinforcing) 4h/Le
WAL-MESH (masonry reinforcing) 2i/Ho
WAL-MESH-LOCK (mortar joint reinforcement) 4h/Ho
WAL-PAK (water coolers) 30d/Fi
WALBLO (water closets) 27a/Ca
WALCON (roof deck, panels) 3a/Wa
WALJET (water closets) 27a/Ca
WALSAN (water closets) 27a/Cr
WALK-IN (storage freezers) 26a/Ty
WALKOVER (roofing) 8a/Ba
WALL-A-WAY (folding partitions) ...22d/To
WALL-FLEX (rubber, vinyl wall coverings) 13i/Ra
WALL-FOL (folding benches, tables)..23i/Ro
WALL-HIDE (water coolers) 30d/Co
WALL-I-DUCT (duct sections) 31h/No
WALL LINE (water coolers) 30d/We
WALL-MASTER (sliding glass doors).17a/Wir
WALL-TEX (wall coverings) 13k/Co
WALL-WEIGH (bathroom scales) 27d/Ke
WALLCHEF (built-in ovens) 25a/Pr
WALLCLAD (vinyl-coated fabric wall covering) 13k/St
WALLHIDE (paint) 15/Pi
WALLMOUNT (wardrobe and overshoe racks) 23d/Vo
WALLPAD (dispenser fasteners) 27e/Bo
WALLSPAN (curtain walls) 3a/Wi
WANETTA (laundry sinks) 27a/Ri
WARM-DRI (towel rack) 27d/Ha
WASCO (light control louvers) 20a/Wa
WASCOFILM (vapor barriers) 8g/Wa
WASCO HATCHWAY (skylight hatchway) 20a/Wa
WASCOSEAL (vapor barriers) 8g/Wa
WASHFOUNTAIN (group washing equipment) 27a/Br
WATAPRUF (roof coatings) 29a/De

trade names

WATCO (sealers, finishes, preservatives) 9/Wa
WATER SAVER (metering showers)...27b/Sp
WATER SEAL (concrete accessories)....2i/Su
WATER SEAL (sealants) 9/Th
WATER-WHEEL (rotary distributors) ..30a/Ye
WATERBAN (water-repellents) 9/La
WATERFLOW (sprinkler control system) 34a/Au
WATERLOO (registers, grilles, dampers, door ventilators) 31f/Wa
WATERLOX (finishes, sealers) 15/Wa
WATERPELLER (bonding agents) 9/Eu
WATERPLUG (masonry treatments) 9/St
WATERSPAR (enamel, varnish, wax) ...15/Pi
WATROUS (soap dispensers).....27e/Im
WATSON (hospital cabinets and equipment) 23L/Wa
WAVE-TEX (brick finish) 4f/Na
WAVELENGTH (expanded metal).....6e/Un
WAVERLY (locksets, lever handles) ...18e/Sc
WAX-SEAL (floor wax, seal) 9/Up
WAX STRIPPER (wax remover) 13m/Hu
WAY "LOCTOR" (access panels) ...16J/Wa
WAYLITE (concrete blocks) 4g/Wa
WEAR-EVER (floor tile) 13c/Sty
WEAR-EVER (aluminum kitchen equipment) 26c/We
WEAREVER (vinyl floor tile) 13i/Mas; 13i/Mat
WEATHER-BAR (shingles) 8a/Ba
WEATHER-CIDE (wood preservative) ..15/Wa
WEATHER-KING (door panels) 16i/Ba
WEATHERALL (floor wax) 13m/Hu
WEATHERBAN (sealers, primers, cleaners) 3f/Mi
WEATHERBAN (building sealers) 13i/Mi
WEATHERCAP (metal joint sealers) 9/Mi
WEATHERCOTE (coating) 15/GLi
WEATHERGUARD (window cleaners' devices) 18c/We
WEATHERMAKER (air conditioners)..31a/Car
WEATHERMAN (louvers) 2i/Ho
WEATHERMASTER (air conditioners).31a/Car
WEATHERSHIELD (aluminum double hung windows) 19a/Kan
WEATHERTITE (joint sealers) 4J/Wi
WEATHERTITE (roof insulation) 8a/Jo
WEATHERTITE (sheathing) 10a/Jo
WEATHERTITE (window ventilators)..17a/Ro
WEATHERTRON (heating, cooling heat pump systems) 31a/Gen
WEATHERWALL (sliding glass doors)..16d/Su
WEATHERWEAR (roof deck covering) 13i/Cr
WEAVE (ceramic tile) 13c/We
WEBCO (display and map rails, chalkboard cement) 23e/We
WEBTEX (bulletin boards) 23e/We
WEBTEX (caulking, sealing compounds) 3f/We
WEDGE-LOK (joints) 29a/Sti
WEDGE-TITE (anchors) 2i/Ar
WEE-ONE (lavatories) 27a/Ca
WEIRMAR (plastic tile) 13g/We
WEISART (toilet compartments) 22b/We
WEISTEEL (toilet compartments) 22b/We
WEISTYLE (hinges) 22b/We
WEISWAY (shower cabinets) 22b/We
WEJ-LOK (mirrors) 27d/Ar
WELBACK (drinking fountains) 27a/Ri
WELD-CRETE (concrete bonding compound) 4i/La; 12e/La
WELD-O-VENT (fume exhaust systems) 31e/En
WELDON (drinking fountains) 27a/Ri
WELDON (roofing cement) 8a/FL
WELDBORD (plywood panels) 5b/Un
WELDFORGED (gratings, treads) 13a/Ker
WELDROK (mineral core partitions)..22a/Uni
WELDROK (fire door core) 16c/Un
WELDTEX (plywood panels) 5b/Un
WELDWOOD (chalkboards) 3c/Be
WELDWOOD (chalkboards, tackboards) 23e/Uni
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BAXCO PYRESOTE
FIRE RETARDANT
LUMBER AND PLYWOOD



...THE IDEAL BUILDING MATERIAL

No other building material offers as many advantages as wood. It is low in cost, readily available. Wood is strong – yet light in weight; it is flexible, easy to cut, shape and handle. Wood has exceptional insulating values, and for decorative uses, no other material can match the warmth and beauty of wood.

UNTREATED WOOD IS COMBUSTIBLE

Man has always associated wood with fire. Until recently this inherent combustible property of wood has limited its use, particularly for decoration and trim in buildings of public assembly, where the use of materials which assist the spread of flames can contribute to fire hazard. Building codes in most major cities in the United States are very specific as to the flame-spread ratings of materials that may be used for interior wainscoating, paneling or other finish applied structurally or for decoration, in public buildings. The tragic Chicago School fire in 1958 has lent impetus to this national concern over fire hazards.

HOW WOOD BURNS

Wood rarely burns directly. Exposed to sufficient heat it first pyrolyzes to form gases and highly combustible tars that escape and leave charcoal behind. Some of the escaping gases burst into flames when they mix with air. Fire spreads chiefly by such gas-fed flames.

Experts in the field of fire prevention and building codes are unanimously agreed that combustible material, including wood, must have a limited flame-spread in prescribed occupancies and locations.

A flame-spread rating is a measure of the speed at which a flame will travel over the surface of a material exposed to fire. Other factors are also taken into account, but in determining the relative combustibility of a material the flame-spread rating is most important.

SCIENCE LEARNS HOW TO FLAME-PROOF WOOD

Now, however, science has discovered a method for deeply impregnating lumber and plywood with fire-retardant chemicals by pressure processes. These chemicals act as catalysts to form less combustible gases, thereby inhibiting the spread of flames. The result is a building material which meets Building Code flame-spread requirements; which carries the Underwriters' Laboratories, Inc. label, and which is classed as incombustible by certain insurance companies for specific uses.

This product is BAXCO fire-retardant pressure treated wood produced by J. H. Baxter & Co., San Francisco, California.

HOW BAXCO-PYRESOTE REDUCES FIRE HAZARDS

BAXCO fire-retardant pressure treatment retards flame-spread in lumber and plywood when exposed to fire, reduces fuel contribution and smoke density and causes burning to cease when the ignition source is removed or exhausted.

In addition to retarding the spread of flame of wood products, BAXCO fire-retardant treatment serves the following practical purposes: prevents rapid ignition of surfaces by fires, provides an additional interval of time for occupants to escape burning buildings,

© 1959, J. H. BAXTER & CO.



In modernizing the old wing of this hospital in San Francisco, Architect John Funk achieved friendly warmth in the lobby with the use of walnut paneling. By using BAXCO fire-retardant pressure treated walnut paneling, Mr. Funk also met fire safety code-requirements. Hart & Hynding, San Francisco, were the contractors.



¼" teakwood	⅝" Pyresoted D.F. Plywood	Furred concrete slab	⅝" Pyresoted plywood

Close-up construction detail of wall shown at right. Now being completed, the new hospital on the Stanford campus at Palo Alto will rank as one of the country's finest. BAXCO fire-retardant pressure treated plywood was used in the six solariums and dining room as backing for the decorative teak.

Behind this floating wall in a solarium in the new Stanford University Hospital is a warming kitchen. To reduce fire hazard Architect Edward D. Stone, Palo Alto, used BAXCO Douglas Fir plywood pressure treated with Pyresote. This backing is covered with ¼" untreated teakwood. Rothschild & Weirick, San Francisco contractors.



minimizes the possibility of people panicking, keeps exit passages free of flames longer, and preserves property and capital values. The retarding effect against the spread of fire provides additional time for fire departments and protective measures to come into play with consequent reduction of loss.

LABELED BY UNDERWRITERS' LABORATORIES, INC.

The Underwriters' Laboratories, Inc. (U. L. 723), standard test method for fire-hazard classification of building materials is used to determine the flame-spread rating of combustible materials, including wood. The purpose of the test is to determine the comparative fire hazard classification by evaluating the rate of flame-spread over its surface, rate of combustion and heat generated and the smoke density developed when attacked by fire. An Underwriters' Laboratories, Inc. label showing flame-spread and other pertinent information is affixed to each piece of "BAXCO"-Pyresote lumber or plywood.

Baxter facilities for fire-retardant pressure treatment are under Underwriters' Laboratories, Inc. continuous factory inspection and label sevice, thus assuring the buyer uniform high quality and protection.

BAXCO-PYRESOTE EXPANDS WOOD USES

BAXCO fire-retardant pressure treated lumber and plywood is useful wherever limited flammability is desired or required.

BAXCO treated lumber and plywood is less combustible and may be used in places where untreated wood is forbidden by building regulations. For instance, in Group A through H Occupancies, the Uniform Building Code requires, with some exceptions, that the flame-spread rating of building materials for interior finishes shall not exceed 25 for vertical and 75 for horizontal exitways. This almost precludes the use of untreated lumber or plywood within these exitways. BAXCO-Pyresote fire-retardant materials meet these code requirements. Authorities having jurisdiction should be consulted for specific details.

Architects and engineers can incorporate the utmost in safety, comply with building code requirements, and utilize the natural beauty and warmth of wood by designing with "BAXCO" fire-retardant lumber and plywood.

For decorative purposes all the advantages of wood may be retained, at low cost, by veneer-core (plywood) construction. With this method an untreated finished face of any species is glued to a fire-retardant treated plywood core. Treated cores with untreated faces are permitted by most code enforcement authorities.

BAXCO-PYRESOTE IS THOROUGHLY TESTED

A number of tests have been developed over a period of many years for evaluating the effectiveness of fire-retardant pressure treatment. These tests include:

1. Crib Test (ASTM–E160)
2. Fire-Tube Test (ASTM–E69)
3. The Federal Specification Test SS-A-118 (b)
4. Fire Hazard Classification Test No.723, commonly called the Tunnel Test, and developed by Underwriters' Laboratories, Inc.

Results of these tests determine whether or not a material conforms to building regulations. BAXCO fire-retardant pressure treated lumber and plywood meet these requirements. Your assurance of receiving uniform quality pressure treated fire-retardant forest products is the Underwriters' Laboratories, Inc. label which is affixed to each sheet of BAXCO plywood or lumber designating its flame-spread rating.

BAXCO-PYRESOTE CAN REDUCE FIRE INSURANCE RATES

BAXCO-Pyresote fire-retardant pressure treated Douglas fir lumber has qualified for insurance rate reductions by successfully passing the Underwriters' Laboratories, Inc. requirements for a fire hazard flame-spread classification of 25 or less and evidence of no significant progressive combustion when subjected to tests of 30-minute duration.

As a result, BAXCO-Pyresote fire-retardant pressure treated 2-inch Douglas fir decking is classed as incombustible by a large number of insurance groups throughout the United States. For specific rate reductions consult the rating bureaus in your vicinity.

BAXCO-PYRESOTE OFFERS 3-WAY PROTECTION

In addition to its approved fire-retardant qualities, the BAXCO-Pyresote chemical formulation will successfully resist damage caused by termites and other insects, as well as decay-producing fungi.



This photo shows part of the construction underway on U.S. Army Nike guided missile sites in the Fairbanks, Alaska, area. Thousands of feet of BAXCO fire-retardant pressure treated Douglas fir lumber and plywood will help protect these remote installations from fire. Sites are being built by the Peter Kiewit Construction Company under contract to the U.S. Army Engineer District, Alaska.

(Below) BAXCO PYRESOTE REDUCES SCHOOL FIRE HAZARDS. Architects Warneke & Warneke, San Francisco and Oakland, chose fire-retardant treated lumber for window sash, frames and interior trim in the new wing of the Alameda High School, at Alameda, California. Construction was performed by Pacific Coast Builders.





To reduce fire danger in the locker room and shop building of the Redwood High School, Larkspur, California, 52,000 board feet of 2 x 6 T. & G. roof decking, pressure treated with BAXCO fire-retardant Pyresote, went into the construction. As shown, it can be painted as readily as untreated wood. Architects were Gromme, Mulvin & Priestley, San Rafael, California.



(A) Sample of Underwriters' Laboratories, Inc. label which identifies all BAXCO pressure treated fire-retardant plywood.

(B) Sample of Underwriters' Laboratories, Inc. label which identifies all BAXCO pressure treated fire-retardant lumber.

BAXCO
Fire Retardant
PYRESOTE-TREATED
DOUGLAS FIR, PLAIN OR MAHOGANY — FACED
PLYWOOD
J. H. Baxter & Co., 120 Montgomery St., San Francisco 4, Cal.

Underwriters' Laboratories, Inc.®
INSPECTED
PLYWOOD
ISSUE NO. 1340

FIRE HAZARD CLASSIFICATION
(BASED ON 100 FOR UNTREATED OAK)

FLAME SPREAD	15
FUEL CONTRIBUTED	25-30
SMOKE DEVELOPED	0-15

SAMPLE

(A)

Underwriters' Laboratories, Inc.®
INSPECTED
TREATED LUMBER
ISSUE NO. 26
FIRE HAZARD CLASSIFICATION
(BASED ON 100 FOR UNTREATED RED OAK)

	*DOUGLAS FIR	HEMLOCK
FLAME SPREAD	25	15-25
FUEL CONTRIBUTED	25-30	25-30
SMOKE DEVELOPED	0	0-10

*FLAME SPREAD NOT OVER 25 AND NO EVIDENCE OF SIGNIFICANT PROGRESSIVE COMBUSTION IN 30 MINUTE TEST DURATION.

"BAXCO"
FIRE-RETARDANT
PYRESOTE-TREATED
J. H. BAXTER CO.
120 MONTGOMERY ST.
SAN FRANCISCO, CALIFORNIA

SAMPLE

(B)

Beauty... Safety... Economy



THE UNITED NATIONS BUILDING, NEW YORK CITY. Untreated wood, for decorative use, contributes greatly to flame-spread in the event of fire. The decorative paneling at the U.N. Building is fire-retardant treated to meet code requirements.

"The fire insurance rating bureaus in a number of midwestern states have recognized that roofs constructed of approved impregnation-treated wood (minimum deck thickness 2" nominal; minimum beam thickness 4" nominal), listed and properly identified as having a flame spread classification not exceeding 25, and showing no evidence of significant progressive combustion when subjected to at least 30 minutes test duration, should be classed as incombustible. Thus, by providing this type of roof deck on a one-story masonry building, the insurance rates can in many instances be substantially reduced."

Excerpt from a letter received from K. H. Parker, manager, Western Actuarial Bureau, an advisory organization to fire insurance rating bureaus.

BAXCO Pyresote fire-retardant lumber can help reduce fire insurance rates!

FIRE PROTECTED WOOD APPROVED FOR CLASS 1 ROOF DECK

WASHINGTON, D. C.—New fire protective treatments now permit wood to be approved as Class 1 roof decks for risks underwritten by Factory Insurance Assn. and Factory Mutual, Paul R. Beattie of the National Lumber Manufacturers Assn. said recently.

Also qualifying for the incombustible recognition, he said, is impregnated lumber listed by Underwriters' Laboratory as having fire hazard classification less than 25, and evidence of no significant progressive combustion when subjected to tests of 30 minute duration.

(Reprinted from **Daily Pacific Builder**, Thursday, March 26, 1959.)

BAXCO fire-retardant Douglas fir lumber, pressure treated with Pyresote has qualified for the Underwriters' Laboratories, Inc. listing described above.

A Statement by Joe R. Yockers, California State Fire Marshal:

"Combustible interior finishes of the halls, stairways and vestibules in buildings used for public assemblage constitute one of the principal fire and panic hazards. . . . There are now available for consideration by architects and engineers interior finishes that are both artistically acceptable for decorative purposes, and still meet fire code requirements."

BAXCO fire-retardant pressure treated lumber and plywood meet the requirements referred to by the California State Fire Marshal.

Teakwood paneling in the offices of the Irving Trust Co., New York City, is fire-retardant treated. Shreve, Lamb, Harmon were the architects. Cabinet work by D. Kramer & Sons.





Unusual beauty and warmth is achieved by the use of Brazilian rosewood in the offices of the Empire Trust Co., N. Y. C. Although New York's fire code is exacting, this veneer-faced paneling, with its fire-retardant treated core, meets requirements. Architects were Kahn and Jacobs, N. Y. C.





Entrance to the offices of George F. Getty II, President, Tidewater Oil Co. Corridor doors in Tidewater's beautiful Los Angeles building have BAXCO Pyresote fire-retardant treated frames of birch lumber. The untreated veneer facings, applied by General Veneer Manufacturing Co., South Gate, meet code requirements for a Class "B" fire door.





Offices of the American Car & Foundry Co., N. Y. C., express the warmth of wood paneling combined with the safety of fire-retardant treated cores, to meet New York City's fire code requirements.



The Union Oil Building, Los Angeles, is one of the West's newest and finest. Designing for maximum safety, architects Pereira and Luckman used walnut faced doors, built by General Veneer Manufacturing Co., utilizing BAXCO fire-retardant treated birch frames.





Sliced walnut panels, from floor to ceiling, provide a restful background in the training center offices of Socony Vacuum Oil Co., Inc., N. Y. C. Here again the decorative beauty of wood is preserved by the use of veneer facings, backed by fire-retardant pressure treated cores, permitted under the New York fire code.



Arena seating for 1960 Winter Olympics is protected by

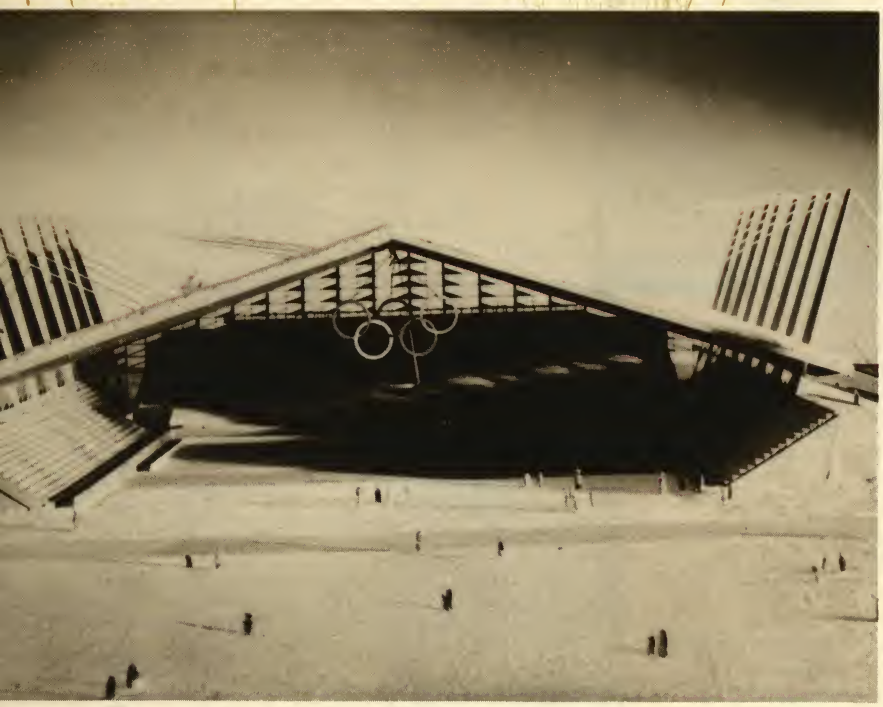
BAXCO PYRESOTE

fire-retardant wood.

Squaw Valley, a remote snow-bowl hidden among the peaks of the High Sierras, near the California-Nevada line, will be the site of the 1960 Winter Olympic Games. In the past three years American architects, engineers, builders have transformed an isolated wilderness into a winter sports capital—complete with all facilities including housing for hundreds of athletes.

Focal point for the Winter Olympics will be the Olympic Arena, where hockey matches, speed skating and other events will take place. This huge structure, owned by the U. S. Government and built at a cost of $3,000,000, will seat 8,000 spectators.

In a remote area such as Squaw Valley, the possible hazards of fire are increased. So, to provide the ultimate in protection, Corlett and Spackman, Kitchen & Hunt, Architects Associated, specified that several thousand wooden bleacher seats be constructed of BAXCO fire-retardant lumber pressure-treated with Pyresote. BAXCO protected, also, will be the wooden press boxes, counters and seats.



ARCHITECTS ASSOCIATED: Corlett and Spackman, A.I.A., Kitchen and Hunt, A.I.A.
STRUCTURAL ENGINEERS: H. J. Brunnier; John M. Sardis
CONSULTING ENGINEERS: Punnett, Parez & Hutchison
SANITARY ENGINEERS: Kennedy Engineers
MECHANICAL & ELECTRICAL ENGINEERS: Vandament & Darmsted
GENERAL CONTRACTOR: Diversified Builders, Paramount, California
SEATING CONTRACTOR: Independent Iron Works, Inc., Oakland, California



FIRE!

The roofing material burned when waste in plywood manufacturing facilities, occupying a former World War II blimp hangar at Tillamook, Oregon, burst into flames.



BUT TIMBER HANGER FRAME, BUILT OF PRESSURE TREATED FIRE RETARDANT LUMBER, STANDS UP!

When fire started on the inside of the thousand foot long hangar, a strong wind blowing toward the hangar, directed the torch-like flame against the side of the building and ignited the roof covering. Owing to the great height of the roof – 170 feet – firemen from the ground were unable to reach the fire burning near the peak with hose streams. The asphalt roof covering burned unchecked, at the upper level, for about an hour before being brought under control.

All wood parts of the hangar frame, except a runway which caught fire and burned, had been impregnated with fire - retardant chemicals – including the Pyresote formulation used by J. H. Baxter & Co.

A study of the fire damage shows the effectiveness of fire-retardant pressure treated lumber. The treated wood deck proved to be a good fire barrier. For even though 3,000 square feet of the 2-inch decking was charred through and had to be replaced, flame spread was reduced to the point that only a relatively small area of the hangar was involved in the fire. This despite high winds and unavoidable delay by firemen in reaching the burning areas.

characteristics and advantages of

BAXCO-PYRESOTE

fire-retardant
plus protection against
decay and termites

	DOUGLAS FIR LUMBER	PLAIN OR MAHOGANY-FACED DOUGLAS FIR PLYWOOD	REMARKS
Is deep penetration achieved through pressure treatment?	Yes	Yes	A century of experience has proved the effectiveness of pressure treatment
Is BAXCO-Pyresote fire-retardant treatment clean, odorless, colorless?	Slight yellowish brown discoloration	Slight yellowish brown discoloration	Portion of these products adjacent to separators for kiln-drying show an additional discoloration
Can BAXCO fire-retardant wood products be painted like untreated wood?	Yes	Yes	See painting recommendation on opposite page
Can BAXCO fire-retardant wood products be stained like untreated wood?	No	No	Staining will not cover discoloration caused by separators during kiln-drying
What are the flame-spread ratings by Underwriters' Laboratories, Inc.?	25	15	Underwriters' Laboratories, Inc. label giving flame-spread rating is affixed to each piece of plywood or lumber
What other protection does BAXCO-Pyresote pressure treatment offer?	Protection against termites and decay as well as against fire	Protection against termites and decay as well as against fire	
Are BAXCO fire-retardant materials kiln-dried after treatment?	Yes	Yes	See specification data

NOTE: BAXCO Protexol fire-retardant treatment of plain or mahogany faced Douglas fir plywood is available. This fire-retardant treatment has the same flame spread rating as BAXCO Pyresote but does not offer the same resistance to decay and termites. SPECIFICATIONS: All plywood is to be exterior type (plain or mahogany faced), pressure-treated with BAXCO Protexol in accordance with Underwriters' Laboratories, Inc. requirements for a flame spread of 15. Each piece of plywood is to bear Underwriters' Laboratories, Inc. label. After treatment the plywood is to be kiln dried to a maximum moisture content of 18%. (A lower moisture content may be specified when necessary.)

specifications — DOUGLAS FIR LUMBER

All Douglas fir lumber specified herein shall be fire-retardant pressure treated with BAXCO-Pyresote in accordance with Underwriters' Laboratories, Inc. requirements for flame spread not over 25 and no evidence of significant progressive combustion in 30-minute test duration. Each piece of lumber is to bear an Underwriters' Laboratories, Inc. label. After treatment all 1″ and 2″ lumber shall be kiln-dried to a maximum moisture content of 18%. (A lower moisture content may be specified for clear lumber or special uses. Lumber thicker than 2″ is to be kiln-dried sufficiently to remove most or all of the water injected during treatment.)

specifications — WEST COAST HEMLOCK

All West Coast hemlock lumber specified herein shall be fire-retardant pressure treated with BAXCO-Pyresote in accordance with Underwriters' Laboratories, Inc. requirements for a flame spread of 15 - 25. Each piece of lumber is to bear an Underwriters' Laboratories, Inc. label. After treatment all 1″ and 2″ lumber shall be kiln-dried to a maximum moisture content of 18%. (A lower moisture content may be specified for clear lumber or special uses. Lumber thicker than 2″ is to be kiln-dried sufficiently to remove most or all of the water injected during treatment.)

specifications — DOUGLAS FIR, PLYWOOD-PLAIN OR MAHOGANY FACED

All plywood specified herein shall be exterior Douglas fir (plain or mahogany faced) fire-retardant pressure treated with BAXCO-Pyresote in accordance with Underwriters' Laboratories, Inc. requirements for a flame spread of 15. Each piece of plywood is to bear an Underwriters' Laboratories, Inc. label. After treatment the plywood is to be kiln-dried to a maximum moisture content of 18%. (A lower moisture content may be specified when necessary.)

Helpful Notes

1. Fire-retardant chemicals injected into the wood are hydroscopic by nature. Consequently, lumber and plywood so treated must be protected from high humidities and damp or exposed storage to avoid subsequent painting problems.

2. At time of shipment BAXCO fire-retardant pressure treated forest products are more than sufficiently dry for satisfactory painting. Careful handling and proper protection from moisture during storage will keep the surfaces dry.

3. BAXCO fire-retardant pressure treated lumber is non-toxic to human beings and if installed according to recommendations, is not corrosive to hardware or metal fasteners.

4. Do not install BAXCO fire-retardant pressure treated lumber and plywood in places of high humidity.

5. To avoid the possibility of the fire-retardant materials picking up moisture, apply a prime coat or sealer to all sides and edges immediately upon arrival at job-site. Apply a prime coat when fire-retardant materials are placed in contact with green plaster.

6. Care should be taken in cutting fire-retardant pressure treated forest products as they have a tendency to dull tools. Carbide tipped tools are helpful.

7. Planing or remanufacturing BAXCO Pyresote fire-retardant pressure treated Douglas fir or hemlock lumber is not recommended and does not comply with Underwriters' Laboratories Inc. requirements.

J. H. Baxter & Co. . . .

has over half a century of experience in the field of treating forest products. Throughout the years the Company has maintained its reputation for leadership by the dependable quality of its pressure treated materials, and through its development of improved treating methods, as well as process machinery on which it owns patents.

other preservative treatments available

J. H. Baxter & Co. maintain five large pressure-treating plants, and many storage yards, strategically located along the Pacific Coast, from Long Beach, California, to Seattle, Washington. These plants produce pressure treated lumber and plywood for a wide variety of industrial and other uses. Besides the fire-retardants, many different preservative treatments are available. These include:

Coal-Tar Creosote; Creosote-Petroleum Mixture; Pentachlorophenol; Ammoniacal Copper Arsenite (Chemonite); and CZC (Chromated Zinc Chloride)

Available pressure treated products: poles, crossarms, piling, railroad ties, lumber, timber and plywood.



prompt, economical shipments anywhere

The treating plants and storage facilities of J. H. Baxter & Co. are served by major railroads and truck lines. This provides economical treating in transit rates, and assures speedy delivery anywhere in the United States. Baxter plants are also well situated for export shipments from West Coast ports.

Write for literature, information or prices.

J. H. BAXTER & CO.

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LITHO IN U.S.A.

SECTION III
FILE 3A
SWEET'S INSERT 1960

CRA®

the mark of quality



Mammoth Mountain Inn. Architect: Theodore T. Boutmy, AIA.

california redwood association
576 SACRAMENTO ST., SAN FRANCISCO 11, CALIF.

california redwood association

The California Redwood Association is a non-profit service organization maintained by the principal redwood mills to provide information on the use of California redwood. The Association is also concerned with the establishment and maintenance of grading standards for redwood lumber, with technical research in production and use of quality redwood lumber, and the best utilization of tree farm crops.

The appearance of the CRA trademark on redwood lumber is your assurance that it has been manufactured to the highest quality standards by a member mill of the California Redwood Association.

USES OF REDWOOD

The natural characteristics of California redwood make it particularly well-suited to meet the exacting requirements of the architect, designer or engineer. Redwood is among the most versatile of all woods.

The principal architectural uses of redwood are for (1) siding and exterior trim, (2) interior paneling and woodwork, (3) architectural millwork and (4) garden structures of many types.

Technical data on the architectural uses of California redwood may be found in more complete detail in the Redwood Data Book. This may be obtained by writing directly to the California Redwood Association, 576 Sacramento Street, San Francisco 11, California.



Interesting variety is achieved with random-length bevel siding. Architect: Kingsford Jones.

COMPARATIVE PROPERTIES

COMPARISON OF WOODS COMMONLY USED FOR CONSTRUCTION*

SPECIES[1]	Decay Resistance of Heartwood[2]	Termite Resistance of Heartwood[3]	Painting Characteristics Grouping[4]	Tendency to Weather Check[5]	Tangential Shrinkage to 10% MC[6]	Tendency to cup and pull nails loose[7]	Thermal Conductivity[8]
REDWOOD	High	Only two woods, REDWOOD and TIDEWATER RED CYPRESS, are mentioned as having this characteristic and being available in commercial quantities.	1	Inconspic.	2.9	Slight	.83
TIDEWATER RED CYPRESS	High		1	Inconspic.	4.1	Slight	.97
WESTERN RED CEDAR	High		1	Inconspic.	3.3	Slight	.71
DOUGLAS FIR	Mod. to low		4	Conspicuous	5.2	Distinct	.95
PINE							
Idaho White	Mod. to low		2	Conspicuous	4.9	Distinct	.80
Northern White	Mod. to low		2	Conspicuous	5.5	Distinct	.72
Ponderosa	Mod. to low		3	Conspicuous	4.2	Distinct	.83
Southern Yellow	Mod. to low		4	Conspicuous	5.1	Distinct	1.12
Sugar	Mod. to low		2	Conspicuous	3.7	Distinct	.77
SITKA SPRUCE	Mod. to low		3	Conspicuous	5.0	Distinct	.83
WESTERN HEMLOCK	Mod. to low		3	Conspicuous	5.3	Distinct	.90

*All page references refer to Wood Handbook, 1955, U. S. Forest Products Laboratory.

[1] Corresponding names, where different from the official Forest Service name or from name adopted as standard by the American Lumber Standards Committee, page 113.

[2] A measure of the ability of the species heartwood to withstand attack by decay fungi. Section on Decay Resistance of Heartwood of Native Species, page 45.

[3] Section on Naturally Termite-Resistant Woods, page 393.

[4] Grouping of softwoods for exterior painting, Table 42, page 358. Group 1 includes woods on which paints of the widest range in kind and quality give good service.

[5] Ability of wood to withstand the destructive action of weathering. Section on Weathering of Wood, page 43.

[6] Calculated from Table 39, page 315. Low shrinkage value indicates minimum tendency to change size, shape or to pull at fastenings and high resistance to weather checking.

[7] Another measure of the wood's stability when exposed to weathering. Weathering of Wood, page 44.

[8] K from Figure 5, page 46, at 10% moisture content; based on specific gravity at 12% from Table 12, page 70.

california redwood association



Dimensionally stable redwood enhances this New Jersey residence. Architect: Jules Gregory.



Narrow redwood bevel siding is featured in this home in Washington. Architect: Mithun & Nesland.

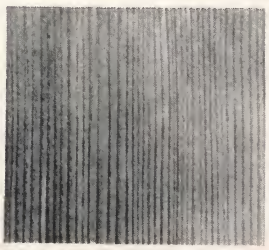
CHARACTERISTICS

California redwood lumber is a softwood produced from the tree *Sequoia sempervirens,* which grows only along the northern California coastline. This species has survived practically unchanged for some 40 million years, is remarkably hardy, and has great resistance to damage by fire, disease or insects.

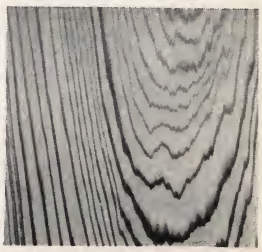
COLOR All-heartwood grades of redwood are a reddish brown color. Lumber of the sapwood grades will contain some of the light cream colored sapwood (alburnum).

TEXTURE Redwood shows a marked uniformity of texture throughout. This results from the similarity between the springwood and summerwood, representing the two parts of the annual growth ring. Because of this, redwood lumber is easy to work, and a smooth even surface is readily obtained with either hand or machine tools.

GRAIN Vertical grain redwood lumber shows a subdued, uniform pattern. It weathers exceptionally well. Flat grain has a highly figured and decorative pattern particularly suited to interior paneling and trim. Unless vertical grain is specified, all grades will contain flat grain, or a mixture of flat and vertical grain pieces. In exterior applications, flat grain lumber should be laid up with the bark side outermost.



Vertical Grain



Flat Grain

PROPERTIES

DURABILITY The distinctive infiltrates which are responsible for redwood heartwood's characteristic reddish-brown color are also responsible for its unusual durability. The U. S. Forest Service classifies redwood in the highest of five groups, rated according to the resistance of the heartwood to decay. Redwood heartwood is also resistant to the attack of termites. It is only the heartwood of redwood which has this quality of durability. For further information on durability see Data Sheet 2D2-1.

DIMENSIONAL STABILITY Redwood's low shrinkage factor is highly important in uses for exterior and interior finish, especially where tight-fitting joints are desirable. It contributes to redwood's stability when used under conditions which induce variation in moisture content. See Data Sheet 2D2-3.

INSULATION Redwood, because of its low density and cellular structure, provides an excellent barrier to heat transfer. See Data Sheet 2D2-6.

WEATHER RESISTANCE Redwood is ranked in the highest classification for its resistance to weather checks, and its freedom from any tendency to cup and pull loose from fastenings when exposed to the weather.

california redwood association

YARD GRADES

The Finish grades are available kiln dried for architectural uses. Construction grades are more generally used for landscaping, garden structures, etc. The "All Heartwood" classification contains the grades of exceptional durability.

For architectural quality, specify "CRA—Certified Kiln Dried" with the Finish grade chosen. It is identified on redwood as:

CRA® CERTIFIED KILN DRIED CLR - RWD

ALL HEARTWOOD

FINISH GRADES

CLEAR ALL HEART V.G. is a special selection of Clear All Heart grade which will show vertical grain heartwood for the full exposed width when laid. The vertical grain has exceptional resistance to weathering under exposed conditions, shows the least tendency to alter in dimension, and will hold a finish unusually well.

CERTIFIED KILN DRIED CLEAR V.G. REDWOOD

Clear All Heart V.G. is a standard grade for bevel, bungalow and Anzac siding for which the properties of superior finish retention and resistance to weathering are especially important. Available on special order for other finish products.

CLEAR ALL HEART is 100 percent clear live heartwood, ranging in color from light reddish brown to deep mahogany. May include flat or mixed grain. Both sides of each piece are of high quality. The face is clear; the reverse side in occasional pieces may have only slight milling imperfections, or two sound pin knots.

CERTIFIED KILN DRIED CLR - RWD

For quality architectural construction and fine millwork, such as exterior siding, trim, interior paneling, built-ins, window frames, sash and mullions. Also used for doors, drip cap, gutters, cornice, and columns. It is highly resistant to decay.

CONSTRUCTION GRADES

SELECT HEART is sound, live all-heartwood, free from shake and splits. The basis of inspection is for lasting quality and, although a piece may otherwise comply with the grading rules, it shall not be included if in the judgment of the grader it is not of durable quality.

The characteristics of redwood are such that the usual shipment does not contain as many knots as are found in most softwood species. Knots are sound, and generally smaller than the maximum size permitted under the "Standard Specifications," which range in size from one-third of the width in narrow pieces, up to two and one-half inches in 10-inch and 12-inch widths.

SELECT HEART REDWOOD

For exacting service where strength and high durability are required. Frequently used for retaining walls, posts, curbing, framing, roofing and decking, also garden structures.

CONSTRUCTION HEART is a heartwood grade of less exacting requirements than Select Heart. Knots are larger, and imperfections from manufacturing may be somewhat more serious than in the higher grades if they do not cause waste. Seasoning checks, slight shake, and medium crook are permitted. Most pieces are 100 percent heartwood, although occasional pieces may show slight corner sapwood on one face.

CONSTN HEART REDWOOD

A decay-resistant, all-purpose grade for farm, home, garden and industrial uses not requiring the greater strength and better appearance of Select Heart. Available in strips, boards, dimension and timbers. Often used in hotbeds, fire walls, fencing, framing, and for various garden structures.

CONTAINING SAPWOOD

FINISH GRADES

A-GRADE V.G. is a special selection of A-Grade which will show vertical grain the full exposed width when laid. It includes the same exceptional qualities found in Clear All Heart V.G., except that it permits sapwood and therefore has contrasting colors and is not as resistant to decay.

CERTIFIED KILN DRIED A V.G. RWD

A standard grade for bevel, bungalow and Anzac siding. Available on special order for other finish products.

A-GRADE is well-manufactured lumber which may include clear sapwood in amounts varying from a small strip along the edge to an occasional piece which is all sapwood. It may include all-heartwood pieces with stain or minor imperfections.

Characteristics permitted, such as surface checks, checked bird's-eye, small crook or slight cup, or an occasional piece with small sound knots, will not impair its value for high quality finish carpentry. Flat and mixed grain are included.

CERTIFIED KILN DRIED A - RWD

A high quality finish lumber for interior paneling, trim, cabinet work and other millwork items. It is an excellent grade for painted exterior surfaces such as siding, rustic, cornice and trim.

CONSTRUCTION GRADES

UTILITY consists of boards and strips providing one face of a quality equal to, or better than, Select Heart, but permitting sapwood and medium stain. The backs, however, may be of lower quality than is permitted on the back of Select Heart. An occasional piece may contain one face defect more serious than is ordinarily permitted in the grade if it is located four feet or more from each end and if it can be removed with waste of six inches or less.

UTILITY REDWOOD

For painted surfaces such as barn boards, garage rustic, storage sheds, and similar uses where clear grades are unnecessary.

SAP COMMON has the same requirements as Construction Heart, but contains sapwood and therefore is not as resistant to decay. The grade will admit medium stain, and an occasional piece may have corner wane that will not impair its value as serviceable lumber.

SAP COMMON REDWOOD

For sheathing, sub-floors, and construction not demanding the decay-resistance of all-heartwood.

MERCHANTABLE contains larger knots and more serious defects than are permitted in the higher grades. Loose knots and knot holes occur in some pieces. Both heartwood and sapwood pieces are included, and shake, stain, and splits are permitted, provided they do not appear in too serious a combination.

MERCH. REDWOOD

Uses limited because of the defects and general appearance, but contains usable stock for sheathing, sub-flooring, and temporary construction. It is frequently recut without excessive waste for low-cost structures, fencing, and similar uses.

california redwood asscciation



Redwood combines with other materials for handsome commercial buildings. Architect: Anshen & Allen, AIA.



Clear All Heart is specified in the tropics because of its superior durability. Architect: Vladimir Ossipoff.



Many outstanding motels make use of redwood's beauty, ease of maintenance. Architect: John Carl Warnecke, AIA.

LUMBER GRADING

The duly-accredited grading agency for redwood lumber is the Redwood Inspection Service, whose grademarks are illustrated on the opposite page. All CRA member mills produce lumber bearing these grademarks.

The following five classifications referred to in the various grades have been established by the lumber industry to describe the types of lumber according to size and general use:

STRIPS: Lumber less than two inches thick and six inches or less in width.

BOARDS: Lumber less than two inches thick but eight inches or more in width. In the utilization of boards and strips, appearance and serviceability are of primary importance; so in grading, the effect of the various characteristics upon appearance and the ultimate use is given major consideration.

DIMENSION: Lumber two inches or more in thickness, but less than five inches thick, and of any width.

JOISTS: Dimension of sizes ordinarily used for floor and ceiling joists.

TIMBERS: Lumber five inches or more in the least dimension. In dimension, joists and timbers, the strength, stiffness, and uniformity of size are of primary importance; appearance is secondary. Characteristics such as knots, checks, splits and shake are therefore permitted in the various grades in accordance with their effect upon the strength of the piece.

SIZES (all dimensions in inches)

The nominal and standard dressed sizes for yard grades are shown below. Thicknesses apply to all widths and widths apply to all thicknesses.

BOARDS, STRIPS, DIMENSION

THICKNESSES							
Rough (nominal)		1	1¼	1½	2	3	4
Dressed S1S or S2S*		25/32	1 1/16	1 5/16	1¾	2⅝	3⅝
WIDTHS							
Rough (nominal)	3	4	5	6	8	10	12
Dressed S1E †	2⅝	3⅝	4⅝	5⅝	7½	9½	11½
or S2E							
♦	2⅝	3½	4½	5½	7¼	9¼	11¼

SQUARES

Rough (nominal)	3 x 3	4 x 4	5 x 5	6 x 6	8 x 8	10 x 10	12 x 12
Dressed, S4S*	2⅝ x 2⅝	3⅝ x 3⅝	4⅝ x 4⅝	5⅝ x 5⅝	7½ x 7½	9½ x 9½	11½ x 11½

* Surfaced thicknesses for all yard grades, green or dry.

† Surfaced widths for green Clear All Heart and A-Grade, and for all other yard grades, green or dry.

♦ Surfaced widths for kiln-dried Clear All Heart and A-Grade, 3" or less in thickness.

california redwood association

FASTENING METHODS

Nailing and screwholding properties of redwood are similar to those of other woods of comparable texture and density. For dry interior work, no special fastenings are needed. For exterior work, corrosion-resistant fastenings, such as aluminum or hot-dipped galvanized nails should be used.

In fastening siding, the withdrawal resistance of the nails is important. This is determined by the type of nail and the amount of penetration into the receiving member. If smooth nails are used, they should penetrate the studding and wood sheathing combined, a total of 1½ inches. Where siding is to be nailed to wood sheathing, spirally-grooved or annular nails should be used to give added holding power.

Nails may be driven flush or countersunk. With natural finishes use a non-oily wood filler to avoid oil stains.

Pre-drilling nail holes or blunting the end of the nail is the best way to avoid splitting the siding when nailing very near an end or edge.

SUGGESTED NAILING METHODS

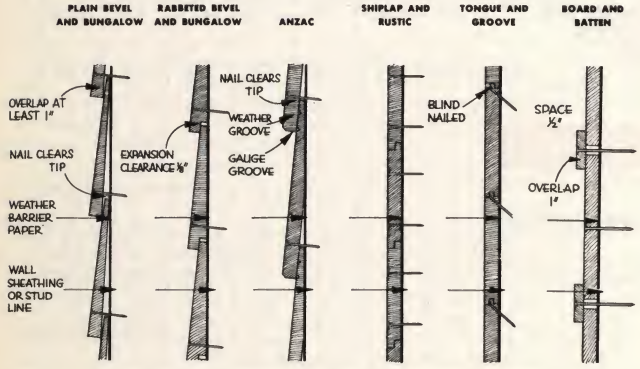
Bevel, Bungalow, Anzac—Plain: Face nailed, one siding nail per bearing, so that shank just clears tip of under-course. Rabbeted: Nail is driven 1″ above thick edge. (8d for ¾″ thickness, 6d for thinner.)

Shiplap and Rustic—6″ and narrower are face nailed, one nail per bearing, 1″ in from overlapping edge. Wider courses are face nailed with two siding nails per bearing (8d for 1″ thickness, 6d for thinner.)

Tongue-and-Groove—6″ and narrower may be face nailed, one 8d siding nail per bearing, or blind nailed, one 6d finish nail per bearing through the tongue; 8″ and wider are face nailed with two 8d nails per bearing.

Board and Batten—Underboards, spaced approximately ½″ apart, are nailed with one 8d siding nail per bearing through center of the board. One 10d siding nail per bearing is driven through center of batten so that nail passes between the underboards.

NAILING DIAGRAM



NOTE—When siding is applied vertically, nail to horizontal blocking placed not over 24″ on centers.

STANDARD PATTERNS

TONGUE AND GROOVE

	Size (nom.)	A	B	C	No.
Square edges	1 x 4	25/32	3½	3¼	132
	1 x 6	25/32	5½	5¼	133
Eased edges	1 x 4	25/32	3½	3¼	132EE
	1 x 6	25/32	5½	5¼	133EE
V1S	1 x 4	¾	3½	3¼	207
	1 x 6	¾	5½	5¼	208
V1S	1 x 4	¾	3½	3¼	209
	1 x 6	¾	5½	5¼	211
	1 x 8	¾	7½	7¼	212
	1 x 10	¾	9½	9¼	213
Drop siding	1 x 6	¾	5½	5¼	106
Paneling	1 x 6	¾	5½	5¼	516
	1 x 8	¾	7½	7¼	517
	1 x 10	¾	9½	9¼	518
	1 x 12	¾	11½	11¼	519

SHIPLAP

	Size (nom.)	A	B	C	No.
Plain	1 x 4	25/32	3½	3	260
	1 x 6	25/32	5½	5	261
	1 x 8	25/32	7½	7	262
	1 x 10	25/32	9½	9	263
	1 x 12	25/32	11½	11	264
Cove rustic	1 x 6	¾	5½	5	270
	1 x 8	¾	7½	7	271
	1 x 10	¾	9½	9	272
V-rustic	⅝ x 6	9/16	5½	5	290
	⅝ x 8	9/16	7½	7	291
	1 x 4	¾	3½	3	292
	1 x 6	¾	5½	5	293
	1 x 8	¾	7½	7	294
	1 x 10	¾	9½	9	295
	1 x 12	¾	11½	11	296
Boston pattern rustic	1 x 6	¾	5½	5	310
	1 x 8	¾	7½	7	311
	1 x 10	¾	9½	9	312
	1 x 12	¾	11½	11	313
Paneling	1 x 8	¾	7½	7 3/16	520
	1 x 10	¾	9½	9 3/16	521
	1 x 12	¾	11½	11 3/16	522

BEVEL SIDING

	Size (nom.)	A	B	C	D	No.
Plain bevel	½ x 4	15/32	5/16	3½	2½	320
	½ x 5	15/32	5/16	4½	3½	321
	½ x 6	15/32	5/16	5½	4½	322
	½ x 8	15/32	5/16	7½	6	323
Plain bungalow	⅝ x 6	9/16	5/16	5½	4½	325
	⅝ x 8	9/16	5/16	7½	6	326
	⅝ x 10	9/16	5/16	9½	8	327
	¾ x 6	¾	5/16	5½	4½	329
	¾ x 8	¾	5/16	7½	6	330
	¾ x 10	¾	5/16	9½	8	331
	¾ x 12	¾	5/16	11½	10	332
Anzac	1 x 8	25/32	⅜	7½	6¼	440
	1 x 10	25/32	⅜	9½	8¼	441
	1 x 12	25/32	⅜	11½	10¼	442
Rabbeted bevel	½ x 4	½	5/16	3½	3	360
	½ x 6	½	5/16	5½	5	362
	½ x 8	½	5/16	7½	7	363
	⅝ x 4	9/16	5/16	3½	3	350
	⅝ x 6	9/16	5/16	5½	5	352
	⅝ x 8	9/16	5/16	7½	7	353
Rabbeted bungalow	¾ x 4	11/16	9/32	3½	3	370
	¾ x 6	11/16	9/32	5½	5	371
	¾ x 8	11/16	9/32	7½	7	372
	¾ x 10	11/16	9/32	9½	9	373
	¾ x 12	11/16	9/32	11½	11	374

See Pattern Book No. 5 for additional patterns.

california redwood association



Entrance of university music building is dominated by redwood mullions framing glass panels. Architect: Milton T. Pflueger, AIA.



Facade of glass set in redwood typifies contemporary design of this Florida church. Architect: J. Brooks Haas, AIA.



Institutional air of Louisiana hospital is softened, warmed by use of beautiful California redwood. Architect: Ricciuti & Associates, AIA.

VAPOR BARRIER

Changes both in construction practices and living habits have contributed to a great increase in the amount of humidity occurring in houses during cold weather. This humidity, in the form of moisture vapor, if unchecked, will move from the humid interior toward the colder exterior and condense within the sidewall. It can cause serious deterioration of the finish film, or bring about extractive bleeding and may result in decay of the framing members.

This condensation can be prevented by installing vapor barriers near the warm sides of the walls, between the insulation and the interior paneling (or plaster). Some insulation is manufactured with an integral vapor barrier. To guard further against moisture vapor problems, provision should be made for adequate ventilation of kitchens, baths, and laundries, as well as attics and crawl spaces.

HANDLING

When the redwood lumber arrives on the job, it should be carefully protected from dirt, accidental damage and particularly from moisture. If it is not to be laid up immediately, it should be placed under cover and off the ground. Some siding has been pretreated at the mill; any mill instructions accompanying the siding should be carefully followed. In the absence of such treatment, all surfaces of the siding should be treated with a paintable water-repellent preservative before the siding is applied. Freshly cut surfaces which develop during construction also should be treated; end-grain surfaces absorb water rapidly and, consequently, they should receive a liberal application of the water-repellent.

EXTERIOR FINISHES

PAINTING

Follow manufacturer's directions. One prime coat and two finish coats are generally recommended.

NATURAL TREATMENTS

Unfinished—Redwood may be left to weather without any treatment whatsoever. The wood first darkens and then gradually bleaches to a driftwood gray.

Water-Repellents—Modify weathering by reducing tendency to darken. Wood gradually lightens to tan or buckskin color. Low maintenance. Representative products are: Cuprinol #20 (Darworth Inc.), Seal-Treat (King Chemical Co.), Wood Tox (Wood Treating Chemicals Co.), Woodlife (Protection Products Manufacturing Co.), Zehrung Penta-Seal (Zehrung Chemical Co.).

Bleaches—Produce a uniformly gray, weathered appearance. Low maintenance. Representative products are: Bleaching Oil #241 (Samuel Cabot, Inc.), Bleachtox (Olympic Stained Products Co.).

Pigmented Stains—Available in wide range of colors. May obscure but not conceal wood grain. Low maintenance. Representative products are: Cedar Rez and Redwood Rez (both Rez Wood-Tones, Inc.), RH25 Sequoia Red and RH80 Mariposa Redwood (both Samuel Cabot, Inc.), California Rustic (Olympic Stained Products Co.), Intex Redwood Stain (American Marietta Co.), Redwood Color Preservative #4 (Linseed Oil Products Co.), #3576 Redwood Tone Stain (W. P. Fuller Co.).

california redwood association

SPECIFICATIONS

FOR REDWOOD

Example: "1x6, S4S, Certified Kiln Dried Clear All Heart, CRA-trademarked."

The items in the specification include:

a. Size—1x6, 1x8, 4x4, etc.

b. Working—S4S, Rough, S1S Resawn face exposed, etc.; or Pattern—T&G Pattern 208, etc.

c. Dryness—Specify Certified Kiln Dried redwood for all architectural finish, such as siding, paneling, trim and millwork. All the Finish Grades are available Certified Kiln Dried.

d. Grade—Clear All Heart, A-grade, Utility, etc.

e. Trademark—The presence of the CRA trademark indicates that the redwood is a quality product of one of the member mills of the California Redwood Association. "CRA-trademarked" should always be a part of a redwood specification.

FOR CONSTRUCTION

a. Nails and Fastenings—For exterior uses specify aluminum or hot-dipped galvanized nails, screws, etc. See Data Sheets 4A1-1 and 4A1-2.

b. Application—For general details on application of siding, see Data Sheet 3A4-1. For specific types—Board & Batten Sheet 3A4-2, Shiplap & Rustic Sheet 3A4-3, Bevel & Bungalow Sheet 3A4-4, Anzac Sheet 3A4-5, Tongue & Groove Sheet 3A4-6, Reverse Board & Batten, Sheet 3A4-7. For interiors, Sheets 3A7-1 and 3A7-2. Redwood Ceilings and Plank and Beam Construction, 3A7-3. Redwood Grillework 3A8-1. Interior Finishes, 4B4-1.



A-Grade paneling contrasts cream-colored sapwood with reddish-brown heartwood. Architect: Anshen & Allen, AIA.

CRA TRADEMARK

The registered CRA trademark, either the design illustrated here, or the letters CRA in any form, signifies the California Redwood Association or one of its member mills. It may be used to identify quality redwood lumber produced by one of the member mills of the Association.

MEMBER SALES OFFICES

ARCATA REDWOOD COMPANY
P. O. Box 218
Arcata, California

GEORGIA-PACIFIC CORPORATION
Equitable Building
Portland 4, Oregon

THE PACIFIC COAST COMPANY
P. O. Box 611
Willits, California

THE PACIFIC LUMBER COMPANY
100 Bush Street
San Francisco, California

SIMPSON REDWOOD COMPANY
P. O. Box 127
Arcata, California

UNION LUMBER COMPANY
620 Market Street
San Francisco 4, California

WILLITS REDWOOD PRODUCTS COMPANY
P. O. Box 608
Willits, California

California REDWOOD Association
576 SACRAMENTO STREET · SAN FRANCISCO 11 · CALIFORNIA

GEORGIA-PACIFIC
WOOD PRODUCTS
A.I.A. File No. 23-L



GP
GEORGIA-PACIFIC



WOOD PRODUCTS REFERENCE GUIDE

Lumber

Plywood

Hardboard

Sales Offices • Warehouses

A.I.A. File No. 23-L

wood products reference guide

type	species	grade	form	size	catalog reference
LUMBER					
softwoods	redwood	CRA rules " "	siding paneling finish	CRA standard " "	siding, sheathing " "
PLYWOOD					
factory finished hardwood	honeytone oak blond oak adirondack birch flame gum blond cativo greymist ash American cherry black walnut cottage paneling- birch, oak, walnut	CS35-56 " " " " " " " " "	v-groove panels " " " " " " " " "	4'x7', 8', 9', 10' panels " " " " " " " "	decorative plywood
textured	ripplewood (douglas fir) striated (douglas fir)	CS45-55 cores and selected face CS45-55 cores and face (coated or natural)	panels, squares panels, squares	4'x8' panels 11⅞" & 15⅞" sqs. 4'x8', 10' panels 11⅞" & 15⅞" sqs.	decorative plywood
overlay surfaced douglas fir	GPX yellow GPX green GPX marine green GPX high density GPX yellow bevel siding GPX yellow vertical siding	CS45-55-exterior " " " special construction exterior type CS45-55-exterior	panels " " " siding panels	4'x5', 6', 7', 8', 9', 10' 5/16" to 1⅛" thick ¼" thick—lengths to 36' " 13/16" beveled 12" & 16" width—8' length 4'x8' panels ⅝" thick	fir plywood siding, sheathing
exterior douglas fir	douglas fir	CS45-55-exterior DFPA inspected	panels	CS45-55	fir plywood
G-P sheathing	douglas fir	CS45-55 (DFPA) (premium and standard)	panels	CS45-55	siding, sheathing
special douglas fir	texture 1-11 hardboard overlay plywood giant scarfed panels marine grade- boat hull ripplewood striated-coated or natural	DFPA rules hardboard face core—CS45-55 CS45-55 DFPA inspected CS45-55—exterior DFPA inspected CS45-55 cores and selected face CS-45-55	panels panels panels panels, squares panels, squares	DFPA standard 4'x8' thickness 5/16" to ¾" width to 5' length 12' & longer width to 5' length 12' & longer 4'x8' panels 11⅞" & 15⅞" sqs. 4'x8' & 10' panels 11⅞" & 15⅞" sqs.	siding, sheathing fir plywood fir plywood fir plywood decorative plywood decorative plywood

For additional information on listed products consult product catalog or write direct to Georgia-Pacific.

PLYWOOD (cont.)

type	species	grade	form	size	catalog reference
interior douglas fir	douglas fir	CS45-55-Interior DFPA inspected	panels	CS45-55	fir plywood
hardwood on softwood core	ash-unselected brown (calico)	CS35-56 face & CS45-55 or CS122-56 core	panels	4'x6', 7', 8'	
	ash-white	"	"	¼" to ¾" thick	
	birch-select red	"	"	"	
	birch-select white	"	"	"	
	birch-unselected	"	"	"	
	cherry-plain sliced	"	"	"	
	mahogany-African flat cut	"	"	"	decorative plywood
	mahogany-Philippine rotary or ribbon	"	"	4'x8'-¼" to ¾"	
	maple-unselected eastern	"	"	4'x6', 7', 8'-¼" to ¾"	
	oak-rotary red	"	"	"	
	oak-half round red	"	"	"	
	oak-plain sliced white	"	"	"	
	oak-rift grain white	"	"	"	
	walnut-plain sliced	"	"	"	
hardwood on hardwood veneer or lumber core	ash-rotary natural	CS-35-56	panels	4'x8'-⅛" to ¾"	
	birch-rotary natural	"	"	"	
	birch-rotary select red	"	"	"	
	birch-rotary select white	"	"	"	
	cherry-plain sliced	"	"	"	
	elm-plain sliced brown	"	"	"	
	elm-rotary natural	"	"	"	
	gum-rotary natural	"	"	"	
	gum-rotary select red	"	"	"	
	gum-quartered sliced medium figured	"	"	"	
	limba-quartered sliced	"	"	"	decorative plywood
	mahogany-African ribbon stripe	"	"	"	
	mahogany-Philippine ribbon stripe	"	"	"	
	maple-plain sliced white	"	"	"	
	oak-plain sliced red	"	"	"	
	oak-rotary cut red	"	"	"	
	oak-rift cut red	"	"	"	
	oak-plain sliced white	"	"	"	
	oak-rift cut white	"	"	"	
	walnut-American plain sliced black	"	"	"	
custom grade hardwood	as selected	CS35-56	panels	as specified	
decorative softwood on softwood core	fir-vertical grain	selected faces & CS45-55 or CS122-56 cores	panels	4'x8'-¼" to ¾"	
	redwood-vertical grain	"	"	"	decorative plywood
	knotty pine-Idaho white	"	"	"	
	knotty cedar-Idaho red	"	"	"	

For additional information on listed products consult product catalog or write direct to Georgia-Pacific

GP

WOOD PRODUCTS | *reference guide*

type	species	grade	form	size	catalog reference
HARDBOARD					
standard	western softwood	LLL-H-35	panels	to 4′x16′	hardboard
tempered	"	"	"	to 4′x8′	
utility	"	"	"	to 4′x16′	
underlayment	"	"	"	4′x4′, 4′x3′	
factory finished	"	to G-P specifications	"	4′x8′	
perforated	"	"	"	to 4′x16′	
decorative	"	"	"	4′x8′	
MOLDINGS					
factory finished hardwood	hardwoods	selected-no defects	eleven patterns	lengths-random and specified	decorative plywood
FINISHING MATERIALS					
kits	G-P kits of finishing materials enable the builder to match moldings, cabinet work and unfinished paneling to G-P factory finished paneling. Also ideal for matching unfinished moldings to paneling of a different species. Includes matching putty sticks.				decorative plywood paneling specification data
redwood exterior finish	A durable stain especially formulated for exterior use on Redwood.				siding, sheathing

For additional information on listed products consult product catalog or write direct to Georgia-Pacific

GP **GEORGIA-PACIFIC**

EQUITABLE BUILDING • PORTLAND 4, OREGON

sales offices

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California, Oakland
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Georgia, Savannah
P. O. Box 1350

Illinois, Franklin Park
Waveland and Carnation

New Jersey, Clifton
400 Allwood Road

Texas, Dallas
2430 Butler St.

Oregon, Portland
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California, San Francisco
400 Montgomery Street

California, So. Pasadena
903 Fair Oaks

Georgia, Augusta
Southern Finance Bldg.

Illinois, Chicago
35 East Wacker Drive

New York, New York
375 Park Avenue

Oregon, Portland
Equitable Bldg.

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Oregon, Portland
Equitable Building

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Oregon, Portland
Equitable Bldg.

SOUTHERN LUMBER

Georgia, Augusta
Southern Finance Bldg.

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California, Bakersfield
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California, Fresno
P. O. Box 731

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California, Riverside
1785 Massachusetts Avenue

California, Salinas
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1031 Industrial Ave.

California, San Jose
660 East Gish Road

Connecticut, Meriden
14 Cherry Street

Georgia, Atlanta
Ottley Drive, N. E.

Illinois, Chicago 17
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Illinois, East Peoria
206 W. Camp Street

Illinois, Franklin Park
Waveland and Carnation

Louisiana, Lafayette
40 N. Pierce Street

Louisiana, New Orleans 29
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Maine, Lewiston
Whipple Street

Maryland, Baltimore 24
301 So. Kresson Street

Maryland, Easton
c/o Terminal Warehouse Co.

Massachusetts, Needham
Kendrick Ave.

Michigan, Grand Rapids
825 Buchanan Ave. S. W.

Michigan, Royal Oak
126 E. Hudson

Missouri, St. Louis
5900 Manchester Avenue

Montana, Billings
Industrial Sites

New Hampshire, Manchester
880 Page Street

New Jersey, Clifton
400 Allwood Road

New Jersey, Long Branch
174 Branchport Ave.

New Jersey, Port Newark
102 Marsh Street

New Jersey, Vineland
Mill & Pine Streets

New York, New Hyde Park,
L.I.—121 So. 4th Street

New York, Yonkers

North Carolina, Charlotte
2115 Freedom Drive

Ohio, Akron
Gilchrist Rd.

Ohio, Cleveland 9
4832 Ridge Road

Ohio, Toledo 7
2461 Dorr Street

Oregon, Eugene
McKinley Ave.

Oregon, Portland 2
330 S. E. Division Place

Pennsylvania, Hatfield
Cowpath Road

Pennsylvania, Lancaster
W. Roseville Road &
Reading R. R.

Pennsylvania, Newcastle
P. O. Box 1238

Pennsylvania, Philadelphia 42
63rd St. & Eastwick Avenue

Pennsylvania, Pittsburgh 1
33rd St. & Liberty Avenue

Pennsylvania, Williamsport
P. O. Box 187
2000 E. Third Street

Rhode Island, Providence
P. O. Box 2176
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South Carolina, Columbia
P. O. Box 9433, Mkt. Ctr. Br.

South Carolina, Greenville
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at Westwood Avenue

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Pasco Air Base

Washington, Seattle
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Washington, Spokane
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Washington, Tacoma
824 E. 25th

Washington, D. C.
3025 "V" Street, N. E.

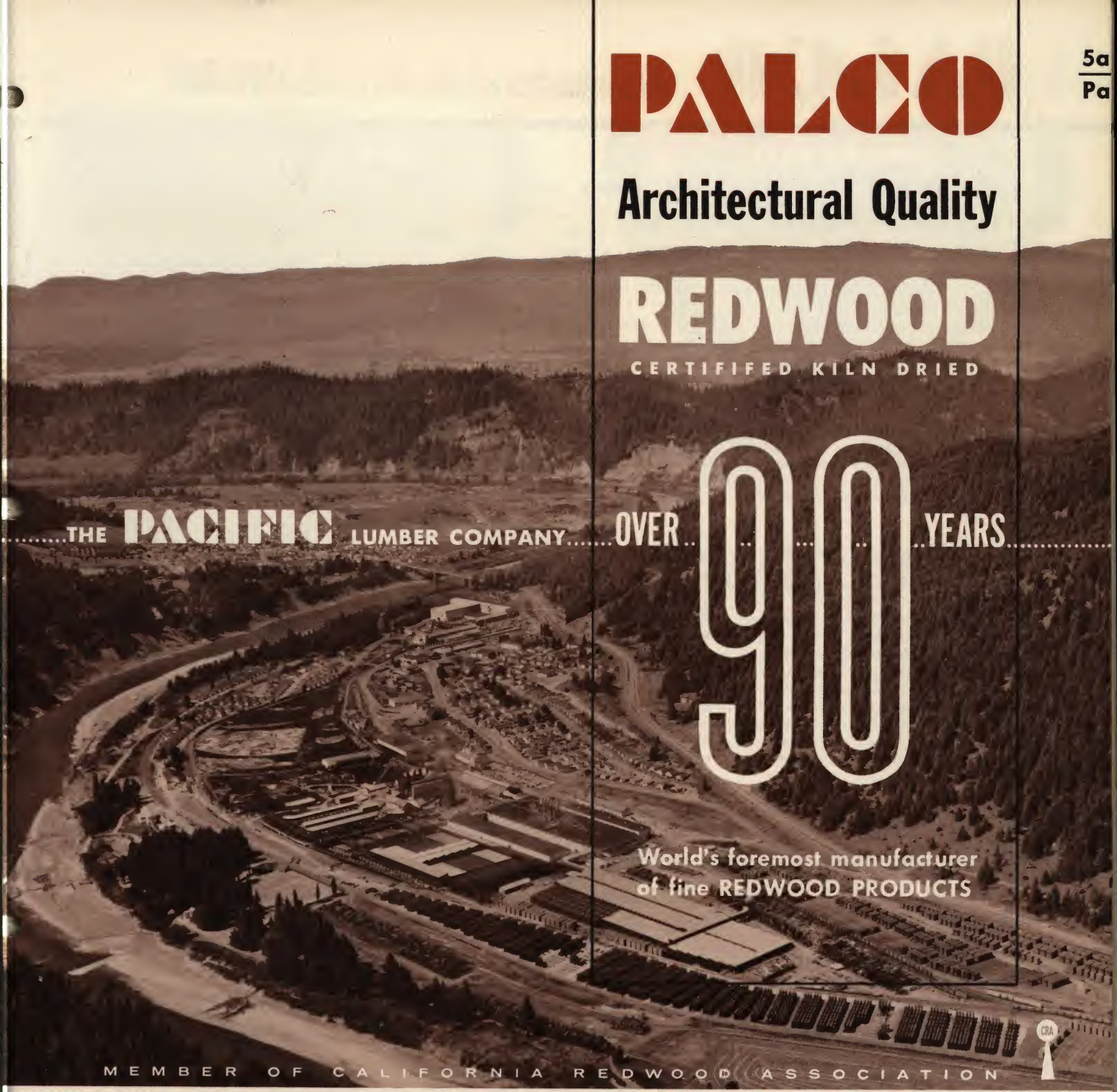
Wisconsin, West Allis 14
8229 W. Greenfield Ave.

PALCO

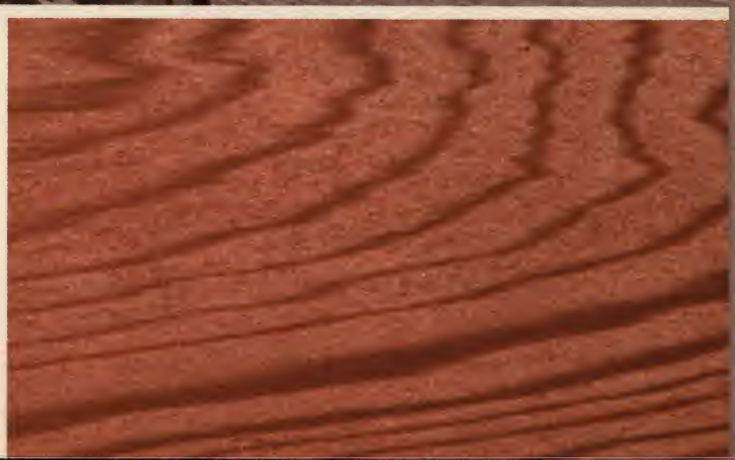
Architectural Quality

REDWOOD

CERTIFIED KILN DRIED







VERTICAL GRAIN

Used in all Palco Resawn Siding, also available in other patterns. Finest in weathering and paint holding properties.

FLAT GRAIN

Available in Rustic and T&G, with patterns cut from bark side to resist "shell-out." Often selected for handsome grain figure.

PALCO® Architectural Quality REDWOOD

"CERTIFIED KILN DRIED" PLUS PALCO PROCESS ASSURES MOISTURE EQUILIBRIUM

When properly dried, redwood has less shrinkage and swelling, more dimensional stability than any other domestic commercial wood. Air drying or quick kiln drying alone won't satisfy Pacific's standards. *Palco Certified Dry* means that proper humidity is distributed *through* each board by this rigid sequence of three important steps:

1—Selective air drying up to 24 months according to green weight brings all lumber to specified humidity range *before* it enters the kiln.

2—Controlled kiln drying, depending on condition and thickness, from 6 to 25 days at specified temperature progressively applied.

3—*Palco* adds a third step. When the board's center approaches moisture equilibrium, surfaces are too dry, and would be distorted by re-absorbing moisture from air. *Palco* Redwood is therefore left in the kiln for an extra process to bring surface moisture back to equilibrium—producing the most stable lumber known.

ONLY THE TOP GRADES

Clear Heart, the very finest available, or A Grade, in strictest accord with grading rules of the California Redwood Association, are the only grades considered worthy of the term *Palco Architectural Quality*—and it is not sold in mixed grades; assuring uniformity.

ALL PALCO RESAWN SIDING IS VERTICAL GRAIN

Because flat grain tends to "shell out" or separate on the heart side, and because every other piece of resawn flat grain would have its surface on the heart side, Pacific insists that all *Palco Architectural Quality* resawn siding must be from vertical grain blanks. Its grain can never raise, since vertical grain angle never exceeds 45° from the vertical.

PATTERN CUT ON BARK SIDE OF FLAT GRAINS

Flat grain is often desirable for appearance or service. Unlike vertical grain, it has but one *face*—the bark side. Grain on the reverse side tends to "shell out" when exposed to weather. Pacific recognizes this fact and exercises every possible control to assure the pattern being cut on the proper face.

PALCO Architectural Quality Redwood is sold only in these TOP FOUR GRADES:

LOOK FOR THESE IMPORTANT GRADE MARKS

...with PALCO, you can be sure of highest uniformity of grade

Specify these versatile patterns and sizes . . . . . .

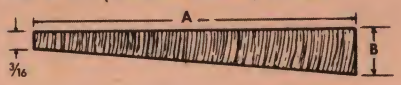
Specialization in these most wanted patterns and sizes provides manufacturing economies—which together with the most modernly equipped redwood manufacturing facilities in the world—explains why *Palco* Architectural Redwood provides higher uniform premium quality at no extra premium in cost. Many other patterns are available, but may be subject to considerable delay in delivery. Patterns shown here are maintained in stock to the full extent possible.

- For natural untreated weathering, or where high resistance to termites or moisture effects is required, specify *Clear Heart.*
- For painted or otherwise protected or sheltered surfaces, either *Clear Heart* or *A Grade* may be used.

Palco Architectural Quality Redwood Resawn Siding is also available mill-treated with penetrating water-repellent "Wood Life" for moisture control.

PLAIN RESAWN "BEVEL" and "BUNGALOW" SIDING

All V.G. (Vertical Grain) S1S2E



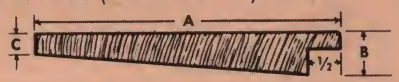
TYPE	SPECIFIED SIZE	PATTERN NO.	ACTUAL DIMENSIONS A	ACTUAL DIMENSIONS B
Plain Bevel Siding	1/2" x 4"	320	3 1/2"	15/32"
	1/2" x 6"	322	5 1/2"	15/32"
	1/2" x 8"	323	7 1/2"	15/32"
Plain Bungalow Siding	5/8" x 6"	325	5 1/2"	9/16"
	5/8" x 8"	326	7 1/2"	9/16"
	5/8" x 10"	327	9 1/2"	9/16"
	3/4" x 8"	330	7 1/2"	3/4"
	3/4" x 10"	331	9 1/2"	3/4"
	3/4" x 12"	332	11 1/2"	3/4"

SPECIFY: "Palco Clear Heart V.G." or "Palco A Grade V.G."

APPLICATIONS: Exterior horizontal siding, or for special interior effect. Heavy shadow line and slanting surfaces provide high design interest.

RABBETED RESAWN "BEVEL" and "BUNGALOW" SIDING

All V.G. (Vertical Grain) S1S2E



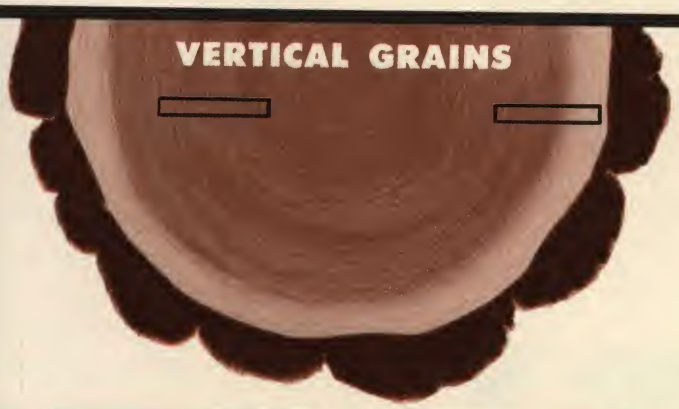
TYPE	SPECIFIED SIZE	PATTERN NO.	ACTUAL DIMENSIONS A	ACTUAL DIMENSIONS B	ACTUAL DIMENSIONS C
Rabbeted Bevel Siding	5/8" x 4"	340	3 1/2"	9/16"	3/16"
	5/8" x 6"	352	5 1/2"	9/16"	3/16"
	5/8" x 8"	353	7 1/2"	9/16"	3/16"
Rabbeted Bungalow Siding	3/4" x 6"	371	5 1/2"	11/16"	9/32"
	3/4" x 8"	372	7 1/2"	11/16"	9/32"
	3/4" x 10"	373	9 1/2"	11/16"	9/32"

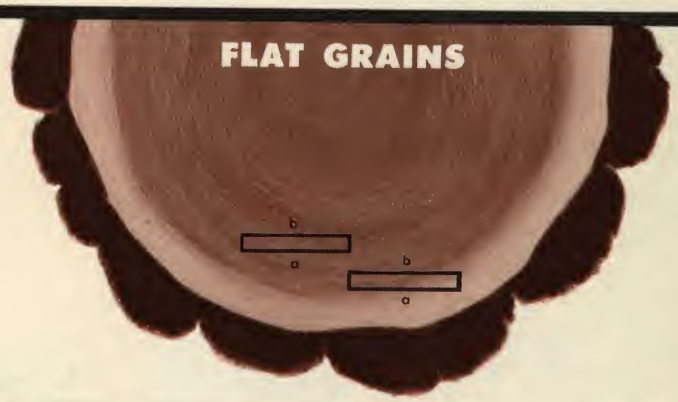
SPECIFY: "Palco Clear Heart V.G." or "Palco A Grade V.G."

APPLICATIONS: Versatile exterior horizontal siding offering weather-tight lap protection in severe exposure, and full contact with studs or sheathing. Shadow line and slant is less pronounced than with equivalent plain resawn patterns. Also used for interior effects.

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the standard of comparison







CRA CERTIFIED K. D. CLR. HT. V. G. PALCO REDWOOD RIS

Vertical Grain Clear All Heart is the very finest available. Grain cannot exceed 45° from the vertical. It has the rich redwood colorings throughout, and provides full benefit of the exclusive combination of features offered only by heart redwood.



CRA CERTIFIED K. D. A GRADE V. G. PALCO REDWOOD RIS

This is a selected grade of Vertical Grain containing some clear sapwood. It is unsurpassed as a paint surface, and is sometimes desirable for natural color contrasts, where the more durable qualities of heart are not essential.



CRA CERTIFIED K. D. CLEAR HEART PALCO REDWOOD RIS

This is the finest flat grain available, with full benefit of all heartwood qualities. *Palco Architectural Quality* features the pattern surface of the board cut from the bark (a) side of the board, so that raised shell grain cannot occur.

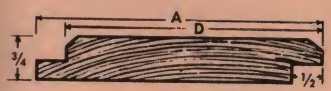


CRA CERTIFIED K. D. A GRADE PALCO REDWOOD RIS

Where all clear heart quality is not required, or where painted surface is indicated or color variation is desirable, A Grade which contains some sapwood may be specified. *Palco Architectural Quality* again insures controlled manufacture, featuring pattern run on the bark (a) side to prevent shellout.

. . . . . for exterior and interior design

V-RUSTIC S4S

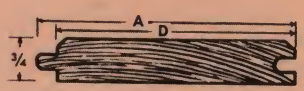


TYPE	SPECIFIED SIZE	PATTERN NO.	ACTUAL DIMENSIONS A	ACTUAL DIMENSIONS D
V Rustic Siding	1" x 6"	293	5½"	5"
	1" x 8"	294	7½"	7"
	1" x 10"	295	9½"	9"

SPECIFY: "Palco Clear Heart (or A Grade) flat grain cut with face toward bark side" or "Palco Clear Heart V.G. (or A Grade V.G.)"

APPLICATIONS: Ideal for horizontal or vertical exterior and interior applications. It offers the advantages of sturdy joints that are not easily damaged, easy application, and choice of flat or vertical grains.

T & G CEILING PATTERN V1S-S2S

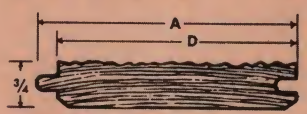


TYPE	SPECIFIED SIZE	PATTERN NO.	ACTUAL DIMENSIONS A	ACTUAL DIMENSIONS D
T & G Ceiling Pattern	1" x 4"	209	3½"	3¼"
	1" x 6"	211	5½"	5¼"
	1" x 8"	212	7½"	7¼"
	1" x 10"	213	9½"	9¼"

SPECIFY: "Palco Clear Heart (or A Grade) flat grain with face toward bark side" or "Palco Clear Heart V.G. (or A Grade V.G.)"

APPLICATIONS: For exterior or interior, horizontal or vertical application, T&G offers maximum weather-tight quality. Clean V pattern gives subdued accent to direction in which boards are laid. For flat surface effects, boards may be reversed.*

COMBED T & G—S2S (with V Pattern on back)



TYPE	SPECIFIED SIZE	PATTERN NO.	ACTUAL DIMENSIONS A	ACTUAL DIMENSIONS D
Combed T & G Ceiling Pattern (With V on back)	1" x 4"	Combed with 209 back	3½"	3¼"
	1" x 6"	Combed with 211 back	5½"	5¼"
	1" x 8"	Combed with 212 back	7½"	7¼"

Note: Combed pattern matches at joints with mixed widths.

SPECIFY: "Palco Clear Heart (or A Grade) flat grain with face toward bark side" or "Palco Clear Heart V.G. (or A Grade V.G.)"

APPLICATIONS: Exterior or interior, horizontal or vertical use gives heightened linear pattern effect. Combed pattern matches at joints with mixed widths. Boards may also be reversed* to show V pattern, often effective as contrast in design, while avoiding need for mixed pattern purchase.

*Where exposed to weather, vertical grain should be specified to avoid shellout which might occur with "wrong" side of flat grains.

Corners stay tight
Boards stay flat
Nailing stays put
Paint lasts longer

...these are the "hidden values" in PALCO Redwood

Redwood exhibits these *potential* values *only* after skilled processing from forest to homesite. The more obvious values of beauty in color and grain and ease of workability also depend on experienced manufacture, handling and shipping.

Since its founding, over 90 years ago, The Pacific Lumber Company has emerged as the oldest redwood producer because PALCO Redwood has *earned* the reputation for delivering these premium values with unsurpassed uniformity—at no extra premium in cost.

For PALCO has constantly pioneered efficient flow-line methods, scientific seasoning and kiln drying, improved equipment, and personnel policies which keep skilled and responsible experts on the job from apprenticeship to retirement.

These are the ingredients which make up both the visible and "hidden values" you expect in redwood—and you *get* in PALCO Architectural Quality Redwood.

Less than one tenth of one per cent of U.S. lumber production, and only slightly over 3% of all redwood can qualify as *Palco Architectural Quality*—even though it is produced in the largest plant in California's redwood area, cutting about 500,000 board feet per day.



20-year-old Midwestern home demonstrates permanence of good design and the "hidden values" you can count on in *Palco* Architectural Quality Redwood.



40,000 visitors per year see for themselves, at our Scotia mill, how the most modern equipment and methods assure extra premium in quality at no extra premium in cost.

the Standard of Comparison through 90 years

PALCO®

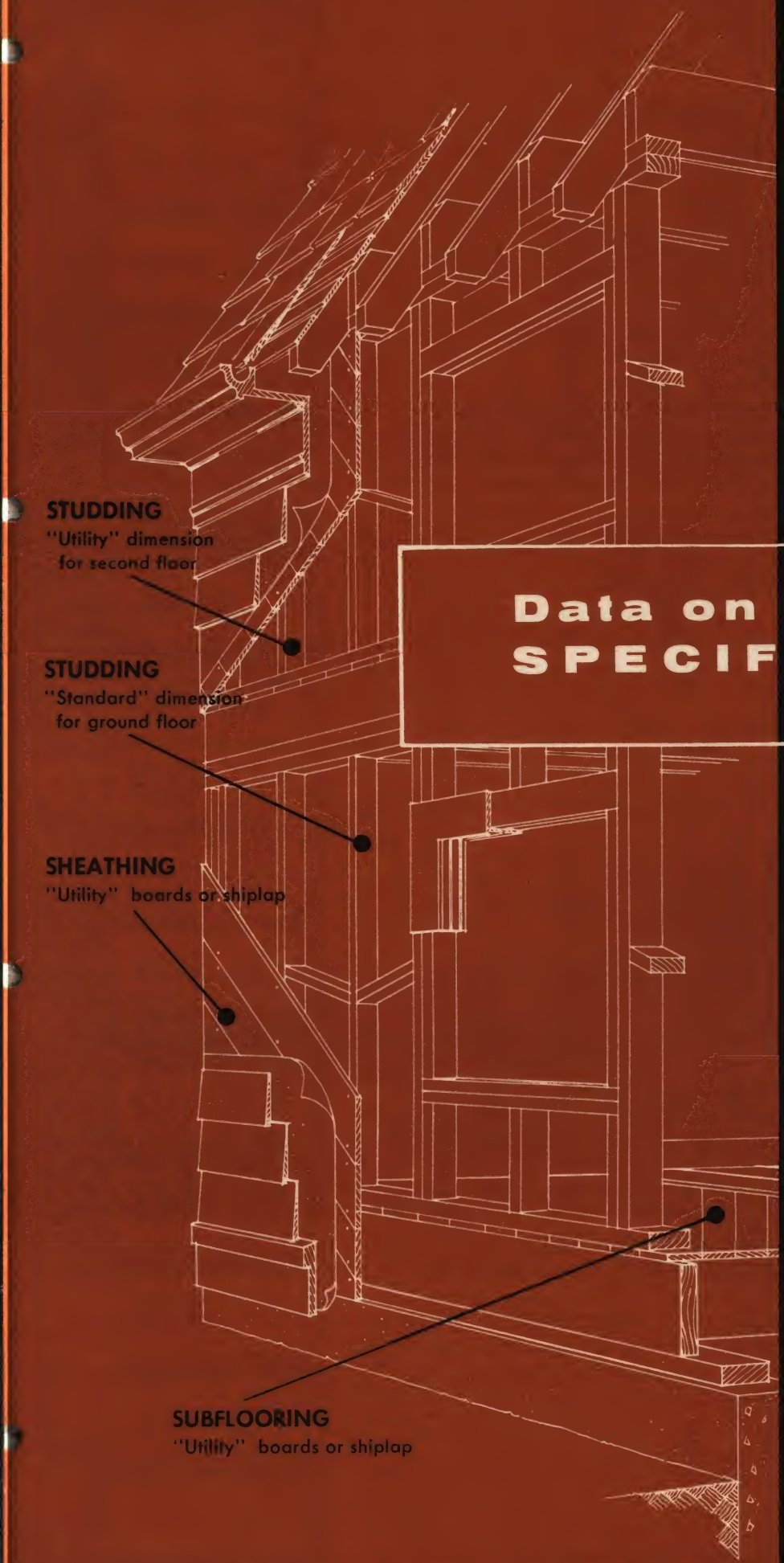
THE PACIFIC LUMBER COMPANY
Mills at Scotia, Eureka, and Elk, California
100 BUSH STREET, SAN FRANCISCO 4, CALIF.
35 E. WACKER DRIVE, CHICAGO 1, ILLINOIS
2185 HUNTINGTON DRIVE, SAN MARINO 9, CALIF.

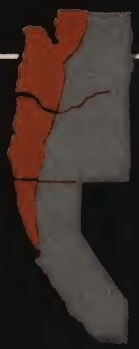
Bulletin No. 901

49M 8-59 Litho in U.S.A.

WEST COAST LUMBER

Data on GRADES & SPECIFICATIONS





Douglas Fir
West Coast Hemlock
Western Red Cedar
Sitka Spruce
White Fir

West Coast lumber comes from the Pacific slopes of the great Northwest. More than 5 million acres of tax-paying forests are already certified as West Coast Tree Farms, pledged to a continuous program of growth, protection and scientific management of forest crops.

DOUGLAS FIR from the West Coast is one of the strongest woods, pound for pound, that has ever been tested. It is supreme for both heavy and light construction and is manufactured into more use items than any other lumber species.

WEST COAST HEMLOCK, also known as Western hemlock or Pacific Coast hemlock, is particularly distinguished by its strength, freedom from pitch, and ease of working—qualities which make it ideal for both framing and finish uses.

WESTERN RED CEDAR is noted for its exceptional durability, light weight and beautiful color. It is very easily worked, takes and holds stains, paints and enamels excellently—qualities which make it especially popular for bevel siding and paneling.

SITKA SPRUCE is odorless and tasteless, extremely strong and resilient, easily worked and superior for gluing. These qualities make it the preferred lumber for many manufactured items. It is available in only limited quantities for construction purposes.

WHITE FIR from the West Coast is non resinous and light in color. It is used extensively for paneling and finish purposes and for light construction framing.

Prepared by West Coast Lumbermen's Association, Portland, Oregon

How to specify...

The mere fact that a piece of lumber is beautifully clear and completely free of knots, shake, wane and other natural growth characteristics does not necessarily mean it is better than some other less perfect piece. It is possible that a knotty 2"x6" will carry two or three times as much weight as a clear piece of the same size and species.

Much expense, delay and misunderstanding can be avoided on construction projects if the right grades of lumber are correctly specified by species, grade-name, nominal size and surfacing.

Following are several sample specifications: "Unless otherwise noted all lumber shall conform to the sizes, patterns and grades in STANDARD GRADING AND DRESSING RULES NO. 15 of the West Coast Lumber Inspection Bureau. Each piece of lumber delivered to the job shall be properly grade stamped as specified in those rules. All paragraph references to lumber in these specifications refer to the above rules.

"All framing lumber delivered to the job shall be piled off the ground in a manner to assure drainage, ventilation and protection from the weather. Building must be thoroughly dry before finish lumber is placed in it."

GRADES AND SPECIES... "Floor joists, headers, lintels, ceiling joists and rafters shall be surfaced 4 sides (S4S) 'Standard' grade (1200f) Douglas fir (Par. 123-c) or West Coast hemlock (Par. 223-c) unless otherwise noted on the plans. However, 'Standard' & Better will be accepted."

"Floor beams and roof beams shall be surfaced 4 sides (S4S), 'Construction' grade (1500f) Douglas fir (Par. 124-b) or West Coast hemlock (Par. 224-b) unless otherwise noted on the plans. However, 'Construction' & Better will be accepted."

"All studding, blocking, bridging, plates, fire-stops shall be surfaced 4 sides (S4S), 'Utility' grade Douglas fir (Par. 122-d), West Coast hemlock (Par. 222-d), Sitka spruce (322-d) or Western red cedar (422-d) unless otherwise noted on the plans. However, 'Utility' & Better will be accepted."

"Wherever noted on the plans, framing members shall be pressure treated with an approved preservative according to the standard specifications contained in the Manual of Recommended Practice of the American Wood Preservers Association."

"Trim, door frames and other exposed finish shall be kiln dried (K.D.) 'C and Better' grade Douglas fir (Par. 102-c) or West Coast hemlock (Par. 202-c) unless otherwise noted on the plans."

"Cedar bevel siding shall be kiln dried (K.D.) 'A' grade (Par. 408-a) unless otherwise noted."

"West Coast hemlock paneling shall be kiln dried (K.D.) 'C' V.G. grade (Par. 211 & 201-c) WC-174 U of O pattern unless otherwise noted on the plans."

(Above typical specifications are given as examples only.)

Finish

WCLB® B-B-VG

WCLB® C-VG

WCLB® D-VG

WCLB® C&BTR

WCLB® D

Boards

WCLB® SEL-MER

WCLB® CONST

WCLB® STAND

WCLB® UTIL

WCLB® ECON

Dimension

WCLB® SEL-STR

WCLB® CONST

WCLB® STAND

WCLB® UTIL

WCLB® ECON

Either mill number or name appears as part of stamp.

5a
Wes

WEST COAST LUMBERMEN'S ASSOCIATION



Grade description

FINISH

"B and Better" is the top grade of vertical grain Finish, used where finest appearance is important on walls, floors, trim and cabinet work. May be stained, enameled, painted or given a natural finish.

"C" vertical grain is suitable for fine finish work both exterior and interior, with stained, painted, enameled or natural finish. Often used in combination with "B and Better".

"D" vertical grain is used for trim, flooring and siding where excellent serviceability and good resistance to wear is desirable but appearance is not of primary importance.

"C and Better" is the top grade of flat grain Finish, suitable for fine quality siding, paneling, trim and cabinet work. Noted for its grain pattern, it is slightly less wear resistant than vertical grain.

"D" flat grain is used for flooring, siding and sheathing where appearance is not of primary importance, but where economy and good serviceability are required.

BOARDS

"Select Merchantable" boards are recommended for construction where appearance is important and for exposed interior and exterior use. Pieces are graded primarily for serviceability, but are usually of fine appearance.

"Construction" boards are used for subfloors, roof and wall sheathing, rough concrete forms and similar types of construction.

"Standard" boards are recommended and usually used in conjunction with "Construction" boards for subfloors, roof and wall sheathing, rough concrete work and similar purposes.

"Utility" boards are used for wall sheathing, subflooring, some types of roof sheathing, and other uses where appearance is not important but where economy and good nail-holding qualities are desirable.

"Economy" boards are used for crating, bracing, dunnage and temporary construction. Short lengths of higher grade material may be obtained from this grade by cutting.

DIMENSION

"Select Structural" Dimension of Douglas fir and West Coast hemlock is recommended for the highest categories of construction, for engineered construction and for exposed interiors and exteriors where a combination of very high strength and finest appearance is demanded.

"Construction" Dimension ranks only slightly below "Select Structural" and is recommended for similar uses when appearance is less exacting.

"Standard" Dimension is recommended and usually used in conjunction with "Construction" Dimension where somewhat lower strength is suitable and appearance is not a primary consideration.

"Utility" Dimension is used for joists and rafters in limited spans, for studs and framing in light construction, and in other places where a combination of utility and economy is desirable.

"Economy" Dimension is used for crating, bracing, dunnage and temporary construction. Short lengths of higher grade material may be obtained from this grade by cutting.

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WEST COAST *Construction* LUMBER

BOARDS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Select Merchantable	Select Merchantable	*Select Merchantable	Select Merchantable
Construction	Construction	Construction	Construction
*Standard	Standard	Standard	Standard
Utility	*Utility	Utility	Utility
Economy	Economy	Economy	Economy

*Photographs of these grades appear on Page 12.

Sizes

Boards are usually most readily available and economical in widths of 4" to 8" and in random lengths of 6' to 16'.

	SIZES		CONVERSION TABLE
	NOMINAL	ACTUAL	
Surfaced 4 Sides (S4S)	1 x 2	3/4 x 1-5/8	1,231 FBM per 1,000 sq. ft.
	1 x 3	3/4 x 2-5/8	1,143 FBM per 1,000 sq. ft.
	1 x 4	3/4 x 3-5/8	1,104 FBM per 1,000 sq. ft.
	1 x 6	3/4 x 5-1/2	1,091 FBM per 1,000 sq. ft.
	1 x 8	3/4 x 7-1/2	1,067 FBM per 1,000 sq. ft.
	1 x 10	3/4 x 9-1/2	1,053 FBM per 1,000 sq. ft.
	1 x 12	3/4 x 11-1/2	1,044 FBM per 1,000 sq. ft.
Shiplap (S/L)	1 x 6	3/4 x 5-1/8 face	1,171 FBM per 1,000 sq. ft.
	1 x 8	3/4 x 7-1/8 face	1,123 FBM per 1,000 sq. ft.
	1 x 10	3/4 x 9-1/8 face	1,096 FBM per 1,000 sq. ft.
Center Matched (CM)	1 x 6	3/4 x 5-1/4* face	1,143 FBM per 1,000 sq. ft.
	1 x 8	3/4 x 7-1/4† face	1,103, FBM per 1,000 sq. ft.

*5-3/16" seasoned.
†7" seasoned.

(Figures do not allow for waste in cutting)

LIGHT FRAMING

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
*Select Structural†	Select Structural†	Select Merchantable	Select Merchantable
Construction	Construction	Construction	Construction
Standard	*Standard	Standard	Standard
Utility	Utility	Utility	Utility
Economy	Economy	Economy	Economy

*Photographs of these grades appear on Page 13.

†These grades are stress graded. See bottom of Pages 4 and 5.

Sizes

Light Framing is usually most readily available and economical in random lengths of 6' to 16' or 6' to 20'.

SURFACED 4 SIDES (S4S)

SIZES		CONVERSION TABLE
NOMINAL	ACTUAL (S4S)	
2 x 2	1-5/8 x 1-5/8	3,000 lineal ft. per 1,000 FBM
2 x 3	1-5/8 x 2-5/8	2,000 lineal ft. per 1,000 FBM
2 x 4	1-5/8 x 3-5/8	1,500 lineal ft. per 1,000 FBM
3 x 3	2-5/8 x 2-5/8	1,333 lineal ft. per 1,000 FBM
3 x 4	2-5/8 x 3-5/8	1,000 lineal ft. per 1,000 FBM
4 x 4	3-5/8 x 3-5/8	750 lineal ft. per 1,000 FBM

(Figures do not allow for waste in cutting)

STRESS GRADES

Stress grades are designed to meet exacting structural requirements and to provide the designer with assured strength values. No stress grades have been established for Sitka spruce, Western red cedar or White fir. For the stress grades in Douglas fir and West Coast hemlock, values have been assigned for extreme fiber in bending "f" and tension parallel to grain "t", horizontal shear "H", compression perpendicular to grain "c⊥" and compression parallel to grain "c". Species, rather than grades, determine modulus of elasticity. Values have been assigned as follows: Douglas fir "E" = 1,760,000; West Coast hemlock "E" = 1,540,000; Western red cedar "E" = 1,100,000; Sitka spruce "E" = 1,320,000. More complete information on all these values is contained in the Standard Grading and Dressing Rules.

WEST COAST *Construction* LUMBER

JOISTS AND PLANKS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
*Select Structural†	Select Structural†	Select Merchantable	Select Merchantable
Construction†	*Construction†	Construction	Construction
*Standard†	Standard†	Standard	Standard
*Utility	*Utility	Utility	Utility
Economy	Economy	Economy	Economy

*Photographs of these grades appear on Pages 14 and 15.

†These grades are stress graded. See bottom of Pages 4 and 5.

Sizes

Joists and Planks are usually most readily available and economical in random lengths of 6′ to 16′ or 6′ to 20′.

	SIZES		
	NOMINAL	ACTUAL	CONVERSION TABLE
SURFACED 4 SIDES (S4S)	2 x 6	1-5/8 x 5-1/2	1,000 lineal ft. per 1,000 FBM
	2 x 8	1-5/8 x 7-1/2	750 lineal ft. per 1,000 FBM
	2 x 10	1-5/8 x 9-1/2	600 lineal ft. per 1,000 FBM
	2 x 12	1-5/8 x 11-1/2	500 lineal ft. per 1,000 FBM
	3 x 6	2-5/8 x 5-1/2	667 lineal ft. per 1,000 FBM
	3 x 8	2-5/8 x 7-1/2	500 lineal ft. per 1,000 FBM
	3 x 10	2-5/8 x 9-1/2	400 lineal ft. per 1,000 FBM
	3 x 12	2-5/8 x 11-1/2	333 lineal ft. per 1,000 FBM
	4 x 6	3-5/8 x 5-1/2	500 lineal ft. per 1,000 FBM
	4 x 8	3-5/8 x 7-1/2	375 lineal ft. per 1,000 FBM
	4 x 10	3-5/8 x 9-1/2	300 lineal ft. per 1,000 FBM
	4 x 12	3-5/8 x 11-1/2	250 lineal ft. per 1,000 FBM
CENTER MATCHED (CM)	2 x 6	1-5/8 x 5 face	2,400 FBM per 1,000 sq. ft.
	3 x 6	2-5/8 x 5 face	3,600 FBM per 1,000 sq. ft.
	3 x 8	2-5/8 x 7 face	3,429 FBM per 1,000 sq. ft.

(Figures do not allow for waste in cutting)

BEAMS AND STRINGERS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Select Structural†	Construction†	.....	Select Merchantable
Construction†	Standard	.....	Construction
Standard	Utility	.....	Standard
Utility	.....	.....	Utility

†These grades are stress graded. See bottom of Pages 4 and 5.

Sizes . . . Rough or surfaced 5″ and thicker, rectangular, width more than 2″ greater than thickness.

POSTS AND TIMBERS

Grades

DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Select Structural†	Construction†	Select Merchantable	Select Merchantable
Construction†	Standard	Construction	Construction
Standard	Utility	Standard	Standard
Utility	.....	Utility	Utility

†These grades are stress graded. See bottom of Pages 4 and 5.

Sizes . . . Rough or surfaced 5″x5″ and larger, width not more than 2″ greater than thickness in case of Douglas fir, West Coast hemlock and Sitka spruce. Western red cedar timbers are 5″x5″ and larger.

DOUGLAS FIR STRESS GRADES

Light Framing	Joists and Planks	Beams and Stringers	Posts and Timbers
Dense Select Structural (2050f)	Dense Select Structural (2050f)	Dense Select Structural (2050f)	Dense Select Structural (1650c)
Select Structural (1900f)	Select Structural (1900f)	Select Structural (1900f)	Select Structural (1500c)
1500f Industrial*	Dense Construction (1750f)	Dense Construction (1750f)	Dense Construction (1400c)
1200f Industrial*	Construction (1500f) Standard (1200f)	Construction (1500f)	Construction (1200c)

*These grades are specially selected for strength. They are not customarily available as stock lumber items.

WEST COAST HEMLOCK STRESS GRADES

Light Framing	Joists and Planks
Select Structural (1600f)	Select Structural (1600f)
1500f Industrial*	Construction (1500f)
1200f Industrial*	Standard (1200f)
Beams and Stringers	**Posts and Timbers**
Construction (1500f)	Construction (1100c)

WEST COAST *Finish* LUMBER

FINISH

Grades

	DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Vertical Grain	*"B and Better"—V.G.	"B and Better"—V.G.	.....	.....
	"C"—V.G.	"C"—V.G.	.....	.....
	"D"—V.G.	*"D"—V.G.	.....	.....
Flat Grain or Mixed Grain	"C and Better"	*"C and Better"	"B and Better"	"B and Better"
	*"D"	"D"	*"C"	"C"
			"D"	"D"

In Western red cedar, Sitka spruce and White fir, if flat grain (F.G.) or vertical grain (V.G.) only is desired, it must be so specified. Otherwise mixed grain (M.G.) may be shipped at shipper's option.

*Photographs of these grades appear on Pages 8 and 9.

Sizes . . . Although obtainable in widths up to 12", Finish is usually most readily available and economical in widths of 8" or less and in random lengths from 3' to 16'.

SIZES		CONVERSION TABLE
NOMINAL	ACTUAL (S4S)	
1 x 2	3/4 x 1-5/8	6,000 lineal ft. per 1,000 FBM
1 x 3	3/4 x 2-5/8	4,000 lineal ft. per 1,000 FBM
1 x 4	3/4 x 3-1/2	3,000 lineal ft. per 1,000 FBM
1 x 5	3/4 x 4-1/2	2,400 lineal ft. per 1,000 FBM
1 x 6	3/4 x 5-1/2	2,000 lineal ft. per 1,000 FBM
1 x 8	3/4 x 7-1/4	1,500 lineal ft. per 1,000 FBM
1 x 10	3/4 x 9-1/4	1,200 lineal ft. per 1,000 FBM
1 x 12	3/4 x 11-1/4	1,000 lineal ft. per 1,000 FBM
1-1/4 x 2	1-1/16 x 1-5/8	4,800 lineal ft. per 1,000 FBM
1-1/4 x 3	1-1/16 x 2-5/8	3,200 lineal ft. per 1,000 FBM
1-1/4 x 4	1-1/16 x 3-1/2	2,400 lineal ft. per 1,000 FBM
1-1/4 x 5	1-1/16 x 4-1/2	1,920 lineal ft. per 1,000 FBM
1-1/4 x 6	1-1/16 x 5-1/2	1,600 lineal ft. per 1,000 FBM
1-1/4 x 8	1-1/16 x 7-1/4	1,200 lineal ft. per 1,000 FBM
1-1/4 x 10	1-1/16 x 9-1/4	960 lineal ft. per 1,000 FBM
1-1/4 x 12	1-1/16 x 11-1/4	800 lineal ft. per 1,000 FBM
2 x 2	1-5/8 x 1-5/8	3,000 lineal ft. per 1,000 FBM
2 x 3	1-5/8 x 2-5/8	2,000 lineal ft. per 1,000 FBM
2 x 4	1-5/8 x 3-1/2	1,500 lineal ft. per 1,000 FBM
2 x 5	1-5/8 x 4-1/2	1,200 lineal ft. per 1,000 FBM
2 x 6	1-5/8 x 5-1/2	1,000 lineal ft. per 1,000 FBM
2 x 8	1-5/8 x 7-1/4	750 lineal ft. per 1,000 FBM
2 x 10	1-5/8 x 9-1/4	600 lineal ft. per 1,000 FBM
2 x 12	1-5/8 x 11-1/4	500 lineal ft. per 1,000 FBM

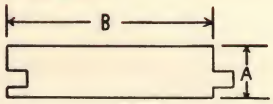
(Figures do not allow for waste in cutting)

FLOORING

Grades

	DOUGLAS FIR	WEST COAST HEMLOCK	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR
Vertical Grain	"B and Better"—V.G.	"B and Better"—V.G.	.....	"B and Better"—V.G.
	"C"—V.G.	"C"—V.G.	.....	"C"—V.G.
	"D"—V.G.	"D"—V.G.	.....	"D"—V.G.
Flat Grain or Mixed Grain	"C and Better"	"C and Better"	"C and Better"	"C and Better"
	"D"	"D"	"D"	"D"
	"E"	"E"	"E"	"E"

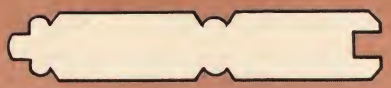
Sizes . . . Flooring is usually bundled at the mill for shipment and sale. Lengths of pieces range from 3' to 16' or longer.



SIZES		CONVERSION TABLE
NOMINAL	ACTUAL	
	A B	
1 x 3	25/32 x 2-3/8	1,263 FBM per 1,000 square feet
1 x 4	25/32 x 3-1/4	1,231 FBM per 1,000 square feet
1 x 6	25/32 x 5-3/16	1,157 FBM per 1,000 square feet
1-1/4 x 3	1-1/16 x 2-3/8	1,579 FBM per 1,000 square feet
1-1/4 x 4	1-1/16 x 3-1/4	1,538 FBM per 1,000 square feet

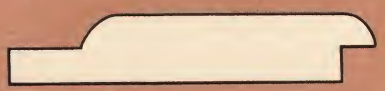
(Figures do not allow for waste in cutting)

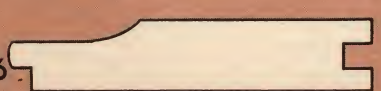
PANELING, SIDING AND CEILING PATTERNS


B. & C. B. 25 Ceiling


WC-105 Siding


WC-116 Siding


WC-131 Paneling


WC-106 Siding


Combination Ceiling


WC-132 Paneling

WEST COAST *Finish* LUMBER

BEVEL SIDING

Grades

	WESTERN RED CEDAR	SITKA SPRUCE WHITE FIR	DOUGLAS FIR	WEST COAST HEMLOCK
Vertical Grain	*"Clear"	"A"	"B and Better"—V.G.	"B and Better"—V.G.
	.....	.....	"C"—V.G.	"C"—V.G.
	.....	.....	"D"—V.G.	"D"—V.G.
Flat Grain or Mixed Grain	*"A"	"B"	.....	"B and Better"
	"B"	"C"	.....	"C"
	*"Rustic"	.....	.....	"D"
	"C"	.....	.....	.....

*Photographs of these grades appear on Pages 10 and 11.

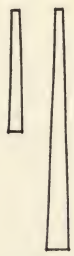
Sizes
Western red cedar

NOMINAL	SIZES ACTUAL Top	Bottom	Width	CONVERSION TABLE
1/2 x 4	3/16	15/32	3-1/2	1600 FBM per 1000 Square feet (1" lap)
1/2 x 5	3/16	15/32	4-1/2	1429 FBM per 1000 Square feet (1" lap)
1/2 x 6	3/16	15/32	5-1/2	1333 FBM per 1000 Square feet (1" lap)
1/2 x 8	3/16	15/32	7-1/2	1280 FBM per 1000 Square feet (1¼" lap)
5/8 x 8	3/16	9/16	7-1/2	1280 FBM per 1000 Square feet (1¼" lap)
5/8 x 10	3/16	9/16	9-1/2	1212 FBM per 1000 Square feet (1¼" lap)
3/4 x 8	3/16	3/4	7-1/2	1280 FBM per 1000 Square feet (1¼" lap)
3/4 x 10	3/16	3/4	9-1/2	1212 FBM per 1000 Square feet (1¼" lap)
3/4 x 12	3/16	3/4	11-1/2	1171 FBM per 1000 Square feet (1¼" lap)

(Figures do not allow for waste in cutting)

Rabbeted Bevel Siding is a special item which is popular in some areas. It is customarily manufactured in ¾" by 6", 8" and 10" widths, and is suitable for application directly over studs. Depth of the rabbet conforms to thickness of thin edge, and width of rabbet is ½".

Sizes
Douglas fir
West Coast hemlock
Sitka spruce



NOMINAL	SIZES ACTUAL Top	Bottom	Width	CONVERSION TABLE
½ x 4	3/16	15/32	3½	1600 FBM per 1000 Square feet (1" lap)
½ x 6	3/16	15/32	5½	1333 FBM per 1000 Square feet (1" lap)
½ x 8	3/16	15/32	7¼	1333 FBM per 1000 Square feet (1¼" lap)
¾ x 8	3/16	¾	7¼	1333 FBM per 1000 Square feet (1¼" lap)
¾ x 10	3/16	¾	9¼	1250 FBM per 1000 Square feet (1¼" lap)
¾ x 12	3/16	¾	11¼	1200 FBM per 1000 Square feet (1¼" lap)

(Figures do not allow for waste in cutting)

DROP SIDING, CEILING AND PANELING

grades are similar in appearance to the "Finish" grades listed on the opposite page.



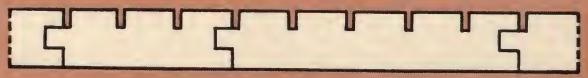
WC-170 Paneling



WC-172 Paneling



WC-171 Paneling



WC-174 U of O Paneling

WEST COAST *Finish* LUMBER

Finish is customarily shipped kiln dried (KD) and surfaced 4 sides (S4S). Finish 1″ or less in thickness is usually dried as closely as practicable to an average moisture content of 10% or less. 1¼″, 1½″ and 2″ Finish is usually dried as closely as practicable to an average moisture content of 12% or less.

VERTICAL GRAIN FINISH GRADES

In vertical grain lumber the grain on the face of a piece appears as alternate strips of light springwood and darker summerwood, providing a good wearing surface and a pleasant appearance. Cupping due to change in moisture content is minimized.

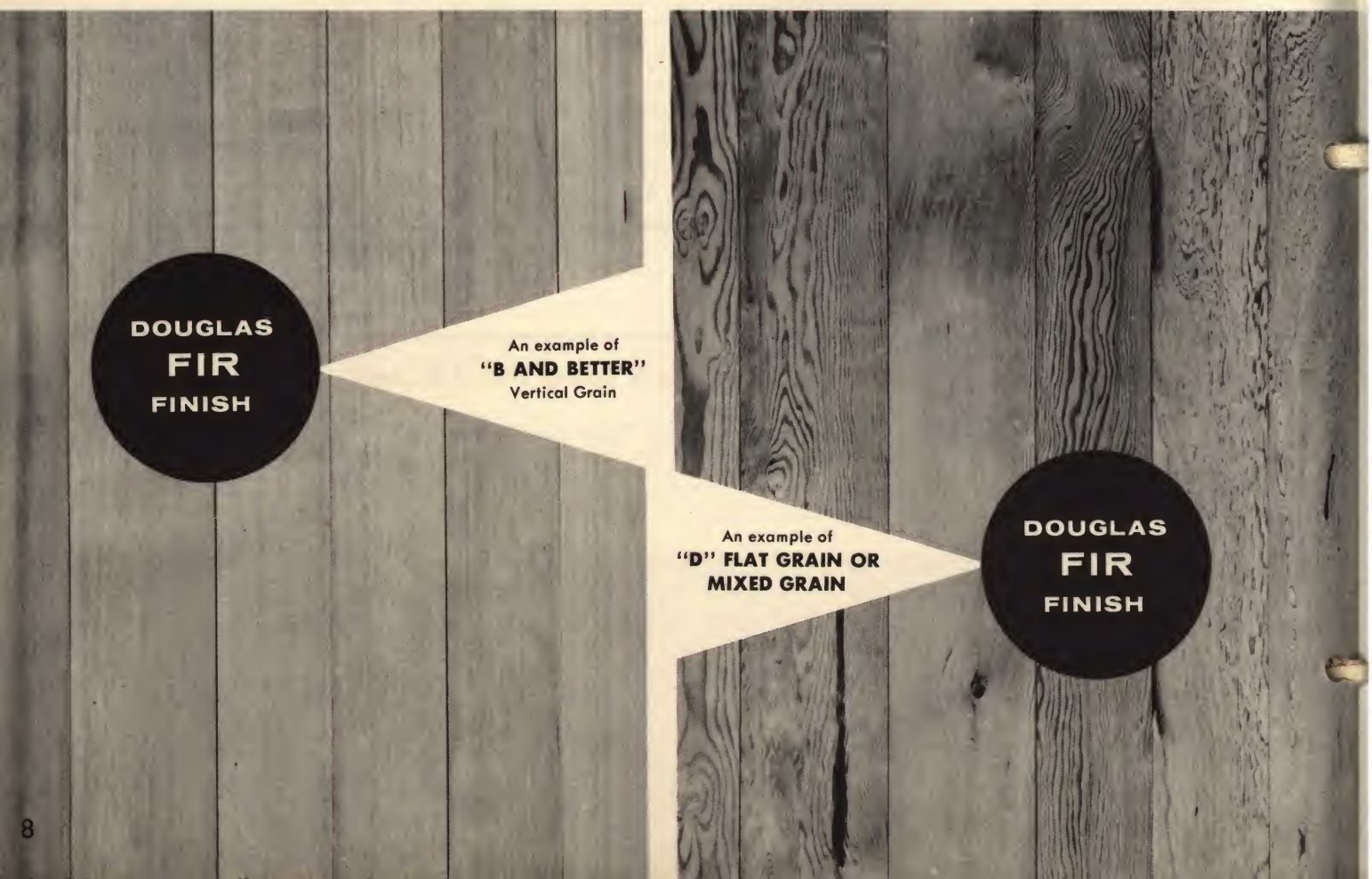
Douglas Fir . . . . . "B and Better", "C", "D"
West Coast Hemlock . . . . . "B and Better", "C", "D"

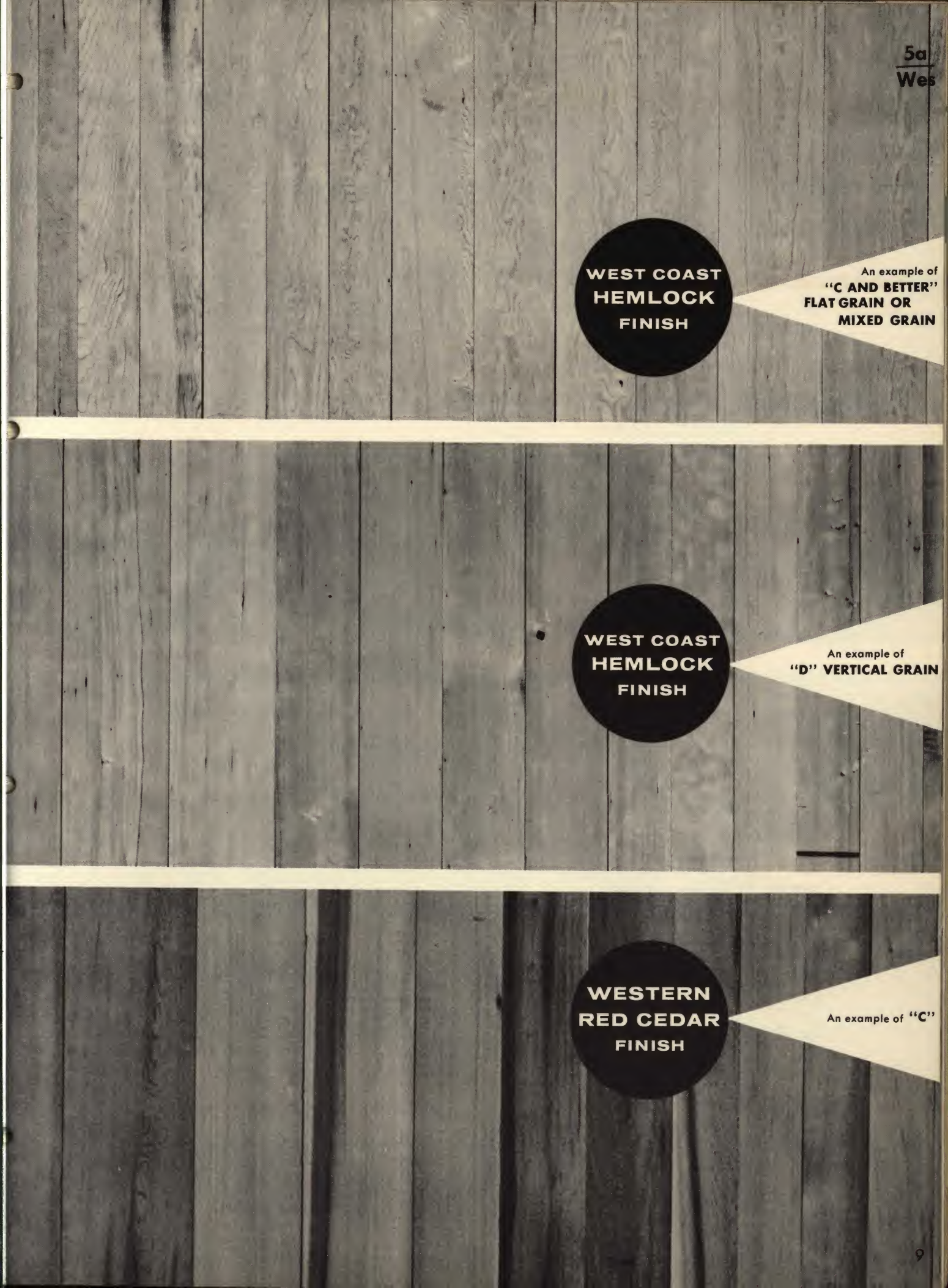
Western Red Cedar . . . . .
Sitka Spruce . . . . . } There are no separate vertical grain grades in these species. If vertical grain or flat grain only is desired, it must be so specified. Otherwise mixed grain, (M.G.) may be shipped at shipper's option.
White Fir . . . . . .

FLAT GRAIN OR MIXED GRAIN FINISH GRADES

In flat grain lumber the annual growth rings viewed from the end of the piece are parallel with the wide face or form an angle up to 30 or 45 degrees to the wide face. This results in an interesting and varied pattern of grain on the exposed face.

Douglas Fir . . . . . "C and Better", "D"
West Coast Hemlock . . . . . "C and Better", "D"
Western Red Cedar . . . . . "B and Better", "C", "D"
Sitka Spruce . . . . . "B and Better", "C", "D"
White Fir . . . . . "B and Better", "C", "D"



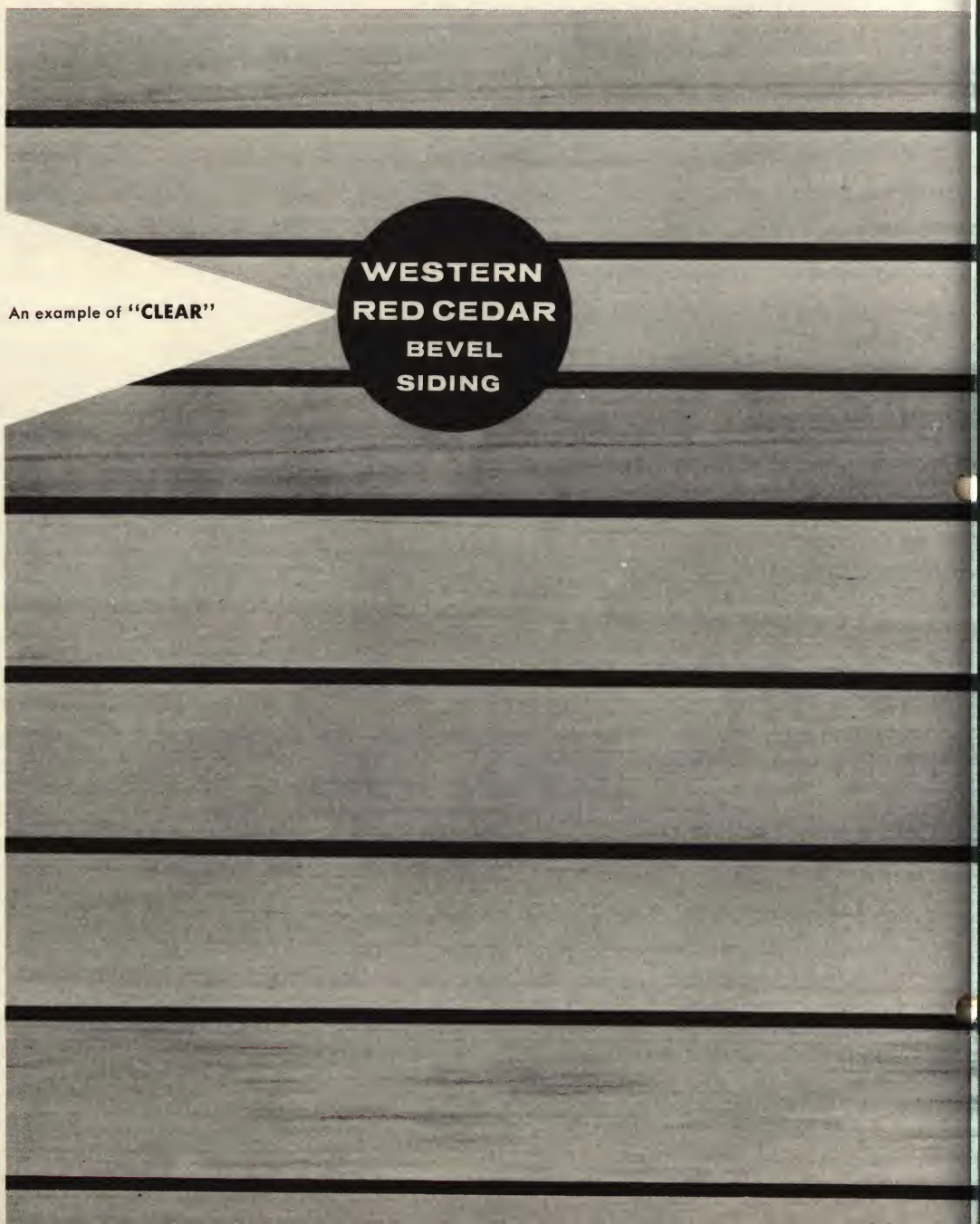

WEST COAST
HEMLOCK
FINISH
An example of
"C AND BETTER"
FLAT GRAIN OR
MIXED GRAIN
WEST COAST
HEMLOCK
FINISH
An example of
"D" VERTICAL GRAIN
WESTERN
RED CEDAR
FINISH
An example of "C"

WEST COAST *Bevel Siding* LUMBER

Bevel Siding is lumber which has been surfaced four sides and then resawn on a bevel to produce two pieces thicker on one edge than the other. It is customarily shipped kiln dried (KD).

BEVEL SIDING GRADES

Western Red Cedar	"Clear", "A", "B", "Rustic", "C".
West Coast Hemlock	"B and Better"—V.G., "C"—V.G., "D"—V.G., "B and Better", "C", "D".
Douglas Fir	"B and Better"—V.G., "C"—V.G., "D"—V.G.
Sitka Spruce	"A", "B", "C".
White Fir	"A", "B", "C".



An example of "**CLEAR**"

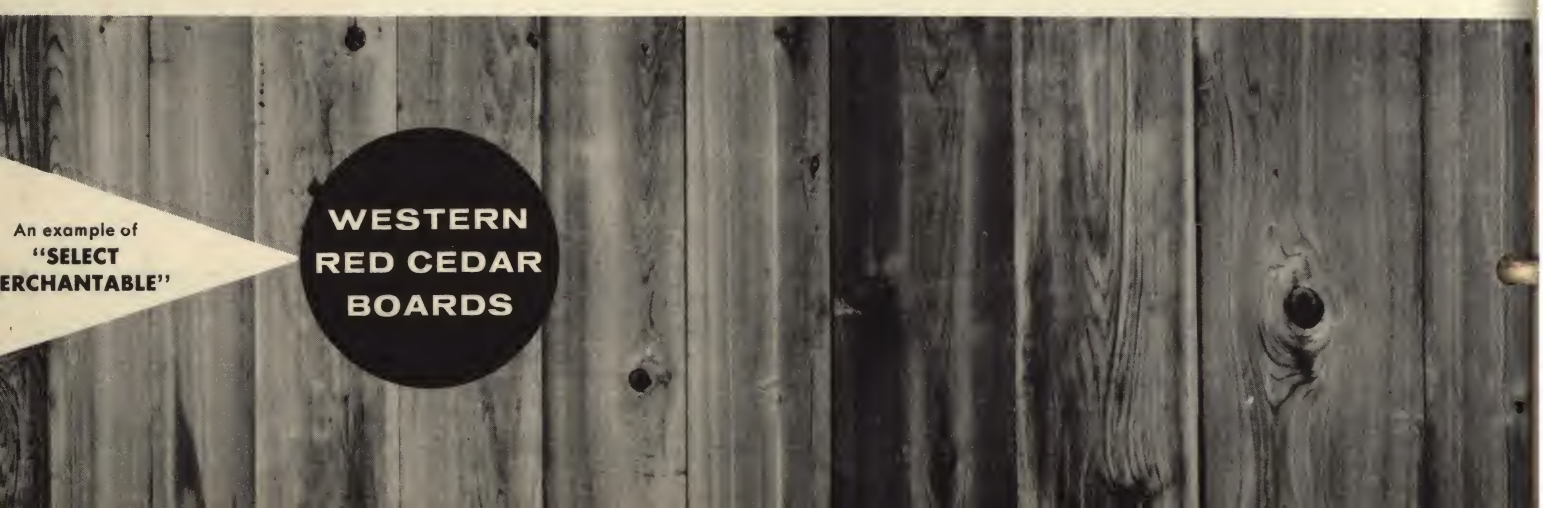

WESTERN
RED CEDAR
BEVEL
SIDING
An example of "A"
WESTERN
RED CEDAR
BEVEL
SIDING
An example of
"RUSTIC"

WEST COAST LUMBER *Boards*

Rough or Surfaced, Shiplap or tongue and groove. Boards are usually of 1″ nominal thickness surfaced to ¾″. See Page 4 for standard sizes and other information pertaining to Boards.







BOARD GRADES

Douglas Fir:
"Select Merchantable", "Construction", "Standard", "Utility", "Economy".

West Coast Hemlock:
"Select Merchantable", "Construction", "Standard", "Utility", "Economy".

Western Red Cedar:
"Select Merchantable", "Construction", "Standard", "Utility", "Economy".

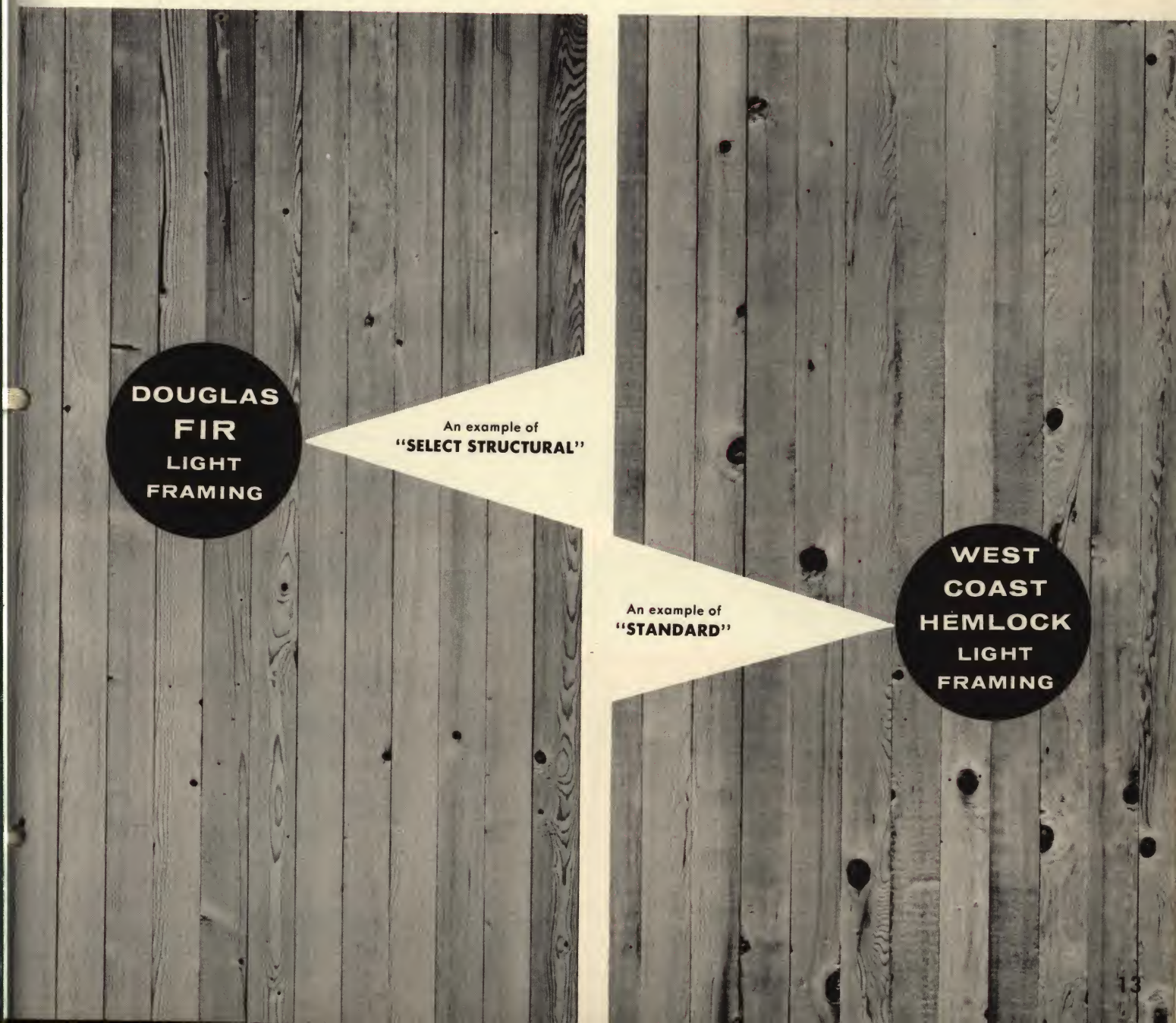
Sitka Spruce:
White Fir:
"Select Merchantable", "Construction", "Standard", "Utility", "Economy".

WEST COAST *Light Framing* LUMBER

Rough or surfaced 2″ to 4″ thick, 2″ to 4″ wide. See Page 4 for standard sizes and other information pertaining to Light Framing.

LIGHT FRAMING GRADES

Douglas Fir	"Dense Select Structural", "Select Structural", "Construction", "Standard", "Utility", "Economy", "1500f Industrial", "1200f Industrial".
West Coast Hemlock . . .	"Select Structural", "Construction", "Standard", "Utility", "Economy", "1500f Industrial", "1200f Industrial".
Western Red Cedar . . .	"Select Merchantable", "Construction", "Standard", "Utility", "Economy".
Sitka Spruce	"Select Merchantable", "Construction", "Standard", "Utility", "Economy".
White Fir	"Select Merchantable", "Construction", "Standard", "Utility", "Economy".



WEST COAST LUMBER *Joists and Planks*

Rough or Surfaced 2″ to 4″ thick, 6″ and wider. See Page 5 for standard sizes and other information pertaining to Joists and Planks.

JOIST AND PLANK GRADES

Douglas Fir	"Dense Select Structural", "Select Structural", "Dense Construction", "Construction", "Standard", "Utility", "Economy".
West Coast Hemlock	"Select Structural", "Construction", "Standard", "Utility", "Economy".
Western Red Cedar	"Select Merchantable", "Construction", "Standard", "Utility", "Economy".
Sitka Spruce	"Select Merchantable", "Construction", "Standard", "Utility", "Economy".
White Fir	"Select Merchantable", "Construction", "Standard", "Utility", "Economy".



An example of "CONSTRUCTION"



An example of "UTILITY"


DOUGLAS
FIR
JOISTS AND
PLANKS
An example of
"SELECT
STRUCTURAL"
DOUGLAS
FIR
JOISTS AND
PLANKS
An example of
"STANDARD"
DOUGLAS
FIR
JOISTS AND
PLANKS
An example of
"UTILITY"

More information about WEST COAST LUMBER GRADES AND USES

(Obtainable from West Coast Lumbermen's Association unless otherwise noted)

DOUGLAS FIR USE BOOK. 8½″x 11″ bound in a durable cloth cover, stitched so that it will stay flat when opened. Contains structural data, design tables and text which gives basic information from which design procedures and tabular data are developed—$5.00 per copy.

GRADING AND DRESSING RULES 15. 338 pages, 3½″x 6½″. Gives the official rules for grading and dressing Douglas fir, West Coast hemlock, Western red cedar and Sitka spruce. Single copies free.

NATIONAL DESIGN SPECIFICATIONS FOR STRESS-GRADE LUMBER AND ITS FASTENINGS.
66 pages, 8½″x 11″. Contains information on allowable unit stresses for stress grade lumber and glued laminated structural lumber under various conditions, design formulas and provisions for various uses. Also contains data on bolted joints, lag screw joints, timber connector joints and nailed joints. 50c per copy from the National Lumber Manufacturers Association, 1319 18th Street, N. W., Washington 6, D. C.

WEST COAST LUMBERMEN'S ASSOCIATION STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED DOUGLAS FIR LUMBER.

DESIGN — 12 pages, 8½″x 11″. Contains information on allowable stresses, induced stresses from curvature, standard sizes, properties of sections and more.

FABRICATION — 12 pages, 8½″x 11″. Contains information on grades of lumber used, laminating requirements, end joints, adhesives and other pertinent data.

TEN ESSENTIAL STANDARDS FOR FABRICATED TIMBER STRUCTURES. 4 pages 8½″x 11″. Outlines fundamental standards for obtaining maximum advantages and economies possible in fabricated timber structures. Free.

TYPICAL LUMBER DESIGNS. 12 pages 8½″x 11″. A catalog of designs for trussed rafters and roof trusses, bridges and trestles. Free from the Timber Engineering Company, 1319 18th Street, N.W., Washington 6, D. C.

PLANK-AND-BEAM FLOOR AND ROOF SYSTEM FOR RESIDENTIAL CONSTRUCTION.
16 pages 8½″x 11″. Contains diagrams, line drawings and photographs of the plank-and-beam system, with tables of plank spans and arrangement of beam spans. Free from the National Lumber Manufacturers Association, 1319 18th Street, N.W., Washington 6, D. C.

DOUGLAS FIR LUMBER GRADES AND USES.
44 pages 8½″x 11″. Contains photographs and descriptions of grades, uses and standard sizes of Douglas fir lumber. Free.

WEST COAST HEMLOCK LUMBER GRADES, USES.
44 pages 8½″x 11″. Contains photographs and descriptions of grades, uses and standard sizes of West Coast hemlock lumber. Free.

WESTERN RED CEDAR LUMBER GRADES, USES.
36 pages 8½″x 11″. Contains photographs and descriptions of grades, uses and standard sizes of Western red cedar lumber. Free.

GRADE GUIDE WALL CHART. 35″x 22″. Packed with useful details—grade descriptions, grade stamp facsimiles, standard sizes. Free.

DOUGLAS FIR—SPECIFICATIONS AND DESIGN RECOMMENDATIONS. 4 pages 8½″x 11″. Covers such uses as bridges, docks, warehouses and other structures for greatest economy. Free.

A REPORT ON DESIGN OF TIMBER-CONCRETE COMPOSITE DECKS. 6 pages 6″x 9″. A study of composite bridge deck construction. Free.

HEAVY TIMBER CONSTRUCTION DETAILS.
16 pages 8½″x 11″. Contains details of heavy timber floor framing and roof framing, laminated floors, trusses and purlins and timber-to-masonry connections. Free from the National Lumber Manufacturers Association, 1319 18th Street, N.W., Washington 6, D. C.

CONDENSED AWPA MANUAL.
Specifications for the Pressure Treatment of Western Woods, 50 pages, 3¾″x 7¼″. Free, from Western Wood Preserving Operators Association, 1410 S. W. Morrison Street, Portland 5, Oregon.

GRADE STAMPS FOR WEST COAST LUMBER.
8 pages 4″x 9″. Contains a complete list of grade stamps for West Coast Lumber. Free.

For additional copies of this folder write:

WEST COAST LUMBERMEN'S ASSOCIATION

1410 S.W. MORRISON STREET
PORTLAND 5, OREGON

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5b
Do

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QUALITY

FIR PLYWOOD

for today's construction

DOUGLAS FIR PLYWOOD ASSOCIATION

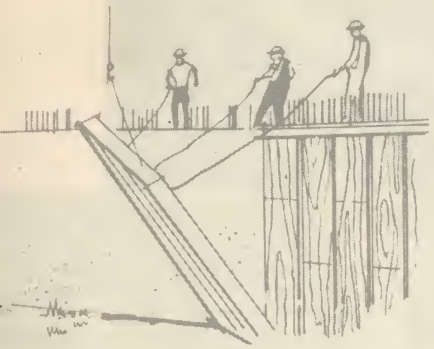
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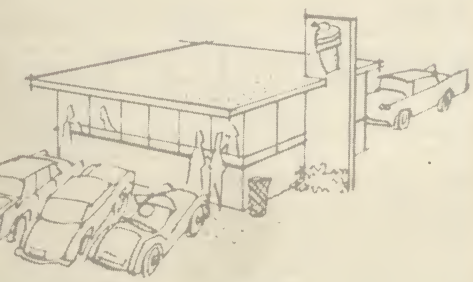
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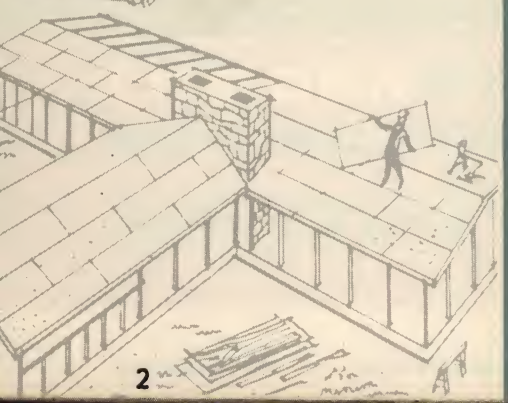


from Douglas fir come the finest plywood panels









Douglas Fir Plywood Association...

is a non-profit, industry-wide organization devoted to the research, promotion and quality control of fir plywood. It is supported by American manufacturers sharing a common interest in the manufacturing and marketing of Douglas fir and Western softwood plywoods.

product research · applied research

Besides maintaining a high level of quality in the production of fir plywood, DFPA also devotes much time and money to product and applied research. Continuous studies make possible new product developments and applications. This research supplies fresh data and new information for the applied technical manuals published by the Association. Close liaison is also maintained with building code officials, government agencies and research laboratories.

DFPA manufacturers are licensed

Through licensing, the industry maintains a rigid program of quality control centered about the DFPA owned grade-trademarks. These grade-trademarks provide positive identification that the panels bearing them have been inspected in accordance with the U. S. Commercial Standard and the rigid performance requirements of the Douglas Fir Plywood Association. Only then will the grade-trademark of the Association be applied to the product.

DFPA ® TESTED QUALITY

registered DFPA grade-trademarks appear on the back or edge of the panel. The letters "DFPA" indicate manufacture under the industry's rigid quality control program. Additional symbols designate the type and grade. The grade-trademarks are licensed for the members' use as long as the high standard of quality is maintained.

DFPA quality control program

Before being licensed to use DFPA grade-trademarks, every manufacturer participating in the Association's quality control program must pass rigid inspection and a testing of his current plywood production. The glues used must pass DFPA tests under actual manufacturing conditions.

Following this, the mills are inspected many times each month. Glue, equipment, veneers, lay-up and finished panels are carefully inspected at every vital stage of the manufacturing process. The inner plies, the ones you don't see, are especially examined for your protection.

Additional scientific testing of thousands of samples of current production in DFPA laboratories is further assurance of a quality product. A special check is made of the glue-line quality and durability.

quality products of DFPA members

definition

Douglas fir plywood, an engineered panel material, is made from a number of thin sheets of wood (veneers). Giant lathes peel select Douglas fir logs forming uniformly thick veneers. An odd number of veneers . . . three, five, seven or nine . . . are then securely bonded together with the grain of adjacent veneers at right angles to one another.

This cross-laminated construction distributes the along-the-grain strength of wood in both directions. Pound for pound, plywood is one of the strongest building materials known . . . even stronger than steel.

2 types

(determined by the glue bond used)

EXTERIOR type
fir plywood is made with a completely waterproof glue. Its bond is stronger and more durable than the wood itself. Always use Exterior type plywood in those jobs exposed to heavy weather and moisture conditions.

EXT-DFPA·A-A

INTERIOR type
fir plywood is made with a highly moisture resistant, but not absolutely waterproof, glue. It works best in those applications where there is a limited exposure to weather and moisture.

INT-DFPA·A-A

grades

(determined by the appearance quality of the veneers used)

- **A** Best standard veneer. Smooth and paintable. May be more than one piece, well jointed. Neatly made repairs permitted.
- **B** Solid surface veneer. Circular repair plugs and tight knots permitted.
- **C–** REPAIRED. Improved "C" veneer. Underlayment grade.
- **C** Minimum veneer permitted in Exterior type. Knotholes to 1", splits, plugs and other repairs permitted.
- **D** Used only for inner plys and backs of interior panels. Limited amount of white pocket permitted.
- **N** Special order "natural finish" veneer. Select, all heartwood. Free of open defects.

advantages

Large Size: Large, work-speeding sizes (4'x8' and larger) simplify construction and make possible time and labor savings of up to 50 and 75 per cent.

Light Weight: Plywood weighs far less than most metals, lumber and hardboard materials of equivalent strength. A ¼" thick panel weighs about 8/10 of a pound per square foot.

Strength and Rigidity: The two-way strength offered in plywood construction is ideal for diaphragm construction, structural, bracing or plate-action applications.

Splitproof and Impact Resistant: Cross-laminated, plywood is splitproof and relatively punctureproof. This means high impact resistance.

Dimensionally Stable: Dry from the factory, plywood is never "green." Its cross-laminated construction restricts expansion and contraction within the individual plys. From oven-dry to complete saturation, a plywood panel shrinks or swells less than 2/10 of 1%.

Easy to Work: Plywood works quickly and easily with ordinary tools. It holds nails well and does not split when they are driven close to the edge. It glues well and will take any finish.

Low Cost: Economical to begin with, plywood further cuts costs because it lends itself to speedy fabrication. Exact panel sizes mean less waste.

western softwood plywood

Plywood panels are also manufactured from other Western softwoods. Available in Exterior and Interior types, they are made in various grades.

Each panel is manufactured under the DFPA's rigid Quality Control and testing program. Panels must meet or exceed the requirements of U. S. Commercial Standard CS 122-56.

Western larch, redwood, cedar, spruce, western hemlock, and noble and white fir are included in the various species used to manufacture Western Softwood plywood.

WSP DFPA TESTED QUALITY

Additional information, or a copy of Commercial Standard CS 122-56 is available from DFPA on request.

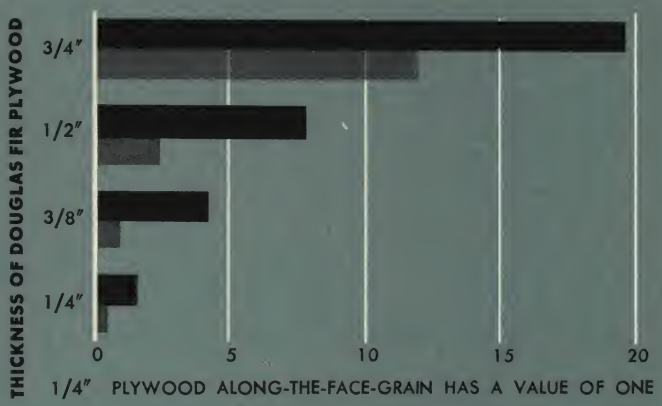
on the following pages:

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suggested specifications other data available	16

physical properties

relative stiffness

Relative plywood stiffness varies markedly with thickness and direction of face grain. Chart shows how various sanded plywood thicknesses compare in stiffness to 1/4" sanded plywood along-the-face grain, which equals value of 1 on the accompanying chart.



strength and rigidity

Two of the fundamental properties that make plywood a highly superior structural material are: large panel size and wood's strength parallel to the grain.

Plywood's cross-laminated construction provides two-way strength and rigidity in each panel. This construction makes plywood relatively splitproof, impact resistant and dimensionally stable.

Design properties for the various plywood thicknesses and constructions are available from DFPA on request.

STRENGTH AND RIGIDITY OF FRAME WALLS

		RELATIVE RIGIDITY	RELATIVE STRENGTH
1" x 8" DIAGONAL SHEATHING	(8d nails, 2 per stud crossing)	1.0	1.3
25/32" FIBERBOARD	(8d nails, spaced 3" at all vertical edges, 5-1/2" to 6" elsewhere.)	1.6	2.1
HORIZONTAL SHEATHING	(1 x 8 sheathing; 1 x 4 let in braces; 8d nails, 2 per stud crossing.)	1.5	2.2
1/4" PLYWOOD NAILED	(6d nails spaced 5" at edges, 10" elsewhere.)	2.0	2.8
1/4" PLYWOOD GLUED TO FRAME		3.7	4.0

Loads are applied laterally in the plane of the test panel.

The accompanying U.S. Forest Products Laboratory table illustrates plywood superiority in diaphragm construction.

nail bearing

Diaphragm action of plywood depends greatly on nail bearing for effectiveness. Plywood possesses this vital strength property to a high degree—even when nails are driven close to the panel edges.

NAIL BEARING LOADS TO FRAMING MEMBERS

Maximum ultimate loads to framing members for plywood nailed to 1⅜" Douglas fir lumber. Plywood panels butted at center lines of studs or joints. Any reduction in edge distance will decrease loads applied perpendicular to the framing member, as in most shear panels. See "Technical Data Handbook" for additional information. These loads are ultimate and a suitable safety factor should be applied.

PLYWOOD THICKNESS	6d COMMON		8d COMMON		10d COMMON		16d COMMON	
	LOAD (lb. per nail)	PLYWOOD EDGE—DISTANCE	LOAD (lb. per nail)	PLYWOOD EDGE—DISTANCE	LOAD (lb. per nail)	PLYWOOD EDGE—DISTANCE	LOAD (lb. per nail)	PLYWOOD EDGE—DISTANCE
5/16"	275	3/8"	305	3/8"				
3/8"	275	3/8"	340	3/8"				
1/2"			350	3/8"	425	3/8"		
5/8"			350	3/8"	425	3/8"	445	3/8"
3/4"					410	3/8"	445	3/8"

MINIMUM BENDING RADII

PANEL THICKNESS	ACROSS GRAIN	PARALLEL TO GRAIN
1/4"	15"	24"
3/8"	36"	54"
1/2"	6'	8'
5/8"	8'	10'
3/4"	10'	12'

Average values for areas of clear, straight grain.

VAPOR TRANSMISSION

PLYWOOD THICKNESS	TYPE	FINISH	WATER VAPOR TRANSMISSION IN GRAINS/HOUR SQ. FT./IN. HG.
1/4"	Int.	Untreated	1.86
1/4"	Int.	1 thin undercoat, 1 coat shellac	0.77
1/4"	Int.	2 coats flat interior paint	1.06
5/16"	Int.	(Sheathing), untreated	1.80
3/8"	Ext.	(3 coats) 1 Standard primer or aluminum primer 2. Two coats of outside paint	0.19
3/8"	Ext.	Untreated	0.72

SOUND INSULATION

1/4" PLYWOOD	SOUND TRANSMISSION LOSS IN DECIBELS
Single Sheet	22.4
Both sides of 2 x 4 studs	31.3

SOUND ABSORPTION

1/4" PLYWOOD	FREQUENCY CYCLES					
	128	256	512	1024	2048	Avg.
Both sides of 2 x 4 studs	.31	.11	.14	.12	.10	.16

PANEL CONSTRUCTION

			"U" VALUES*
3/8" Plywood (Single sheet)			.79
3/4" Plywood (Single sheet)			.58
PLYWOOD INNER LINING	INSULATION BETWEEN STUDS	PLYWOOD OUTER WALL	
1/4"	None	3/8" Ext.	.40
1/4"	1/2" Blanket	3/8" Ext.	.19

*Coefficient of thermal transmission in B.T.U.'s/hr./sq.ft./° Temp. diff.

bending

Simple curves are easy to form with plywood. Best results are obtained when a continuous rounded backing is used. In applications where there are abrupt curvatures secure the panel end to the shorter radius first. In critical bends, two thin panels often work better than one thick one. Shorter radii can be developed by wetting and steaming . . . use only Exterior-type plywood . . . however, there is a greater risk of rupture, checking and grain raise with this method.

vapor transmission

The tabular values represent the water vapor transmitted through plywood in grains per square foot, per hour, per inch of mercury pressure.
Values less than 1.00 are regarded as indicating an efficient vapor barrier material. The lower the value, the more effective the barrier.

acoustical

In absorbing sound and reducing its transmission, plywood rates well. The tabulated values show the loss of sound transmitted through plywood panels. Sound absorption coefficients are also shown on the chart.

thermal

Plywood like any wood has excellent insulating properties. A $\frac{5}{16}$" thick panel plus a dead air space has the same insulation value as $\frac{7}{16}$" of "insulation" material. Plywood panelled walls with backing at all joints prevent drafts and air infiltration and create true dead air spaces.

types / grades / typical uses / sizes

types

- EXTERIOR
- INTERIOR
- SPECIAL

grades

A

Best standard veneer. Smooth and paintable. May be more than one piece, well jointed. Neatly made repairs permitted.

B

Solid surface veneer. Circular repair plugs and tight knots permitted.

C REPAIRED

Improved "C" veneer. Underlayment grade.

C

Minimum veneer, permitted in Exterior type. Knotholes to 1", splits, plugs and other repairs permitted.

D

Used only for inner plys and the backs of interior panels. Limited amount of white pocket permitted.

N

Special order "natural finish" veneer. Select, all heartwood. Free of open defects.

	GRADE	GRADE-TRADEMARK EDGEBRAND	BACKSTAMP	DESCRIPTION AND USES
EXTERIOR TYPES	A-A	EXT-DFPA·A-A		Used where the appearance of both sides is important. Fences, carports, signs, boats, etc.
	A-B	EXT-DFPA·A-B		For uses similar to EXT A-A panels, but where the appearance of one side is less important.
	A-C	EXT-DFPA·A-C	EXT-DFPA A-C DFPA	Exterior plywood with a waterproof bond. Used where the appearance of only one side is important.
	B-C	EXT-DFPA·B-C	EXT-DFPA B-C DFPA	An outdoor utility panel. For farm and work buildings.
	C REP C	EXT-DFPA·C REP C	EXT-DFPA C REP C DFPA	Used as a base for tile, linoleum, carpeting, where unusual moisture conditions exist.
	C-C	EXT-DFPA·C-C	EXT-DFPA C-C DFPA	Unsanded grade with waterproof bond. Best for backing, rough construction, farm buildings, etc.
	B-B PLYFORM	EXT-DFPA·PLYFORM	PLYFORM DFPA	Concrete form grade, maximum re-use. Edge sealed with distinctive red sealer. Mill oiled unless otherwise specified.
INTERIOR TYPES	A-A	INT-DFPA·A-A		For interior applications where both sides will be viewed.
	A-B	INT-DFPA·A-B		For use similar to INT. A-A panels, but where the appearance of one side is less important.
	A-D		INT-DFPA A-D DFPA	Interior use where appearance of only one side is important.
	B-B		INT-DFPA B-B DFPA	Utility panel. Used where two smooth sides are required.
	B-D	INT-DFPA·B-D	INT-DFPA B-D DFPA	Utility panel. Used where one smooth side is required.
	C REP D		STRUC-INT C REP D DFPA	Base for tile, linoleum, carpeting, and backing material for interior use.
	PLYSCORD		PLYSCORD DFPA	Unsanded sheathing or structural grade fir plywood.
	PLYSCORD exterior glue		PLYSCORD DFPA	Same as PlyScord above, but with waterproof glue. Not normally a substitute for Exterior grade plywood.
	B-B PLYFORM		PLYFORM DFPA	Re-usable concrete form plywood. Glue moisture-resistant, not waterproof. Green sealed edges, mill oiled unless otherwise specified.
	2-4-1		2-4-1 DFPA	New combination subfloor and underlayment. Base for tile, linoleum, carpeting, and wood strip flooring. Used on 4' spans.

PLYSCORD DFPA

For ordinary sheathing applications, Western Softwood Plywood panels bearing the PlyScord grade trademark at left may also be specified.

DOUGLAS FIR PLYWOOD

DFPA TESTED QUALITY

FACE	BACK	INNER PLIES	WIDTH	LENGTH	THICKNESS 1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
A	A	C	4′	8′	●		●	●	●	●	●
A	B	C	4′	8′	●		●	●	●	●	●
A	C	C	4′	8′	●		●	●	●	●	●
B	C	C	4′	8′	●		●	●	●	●	
C REPAIRED	C	C	4′	8′	●		●	●	●	●	
C	C	C	4′	8′		●	●	●	●	●	
B	B	C	4′	8′					●	●	
A	A	D	3′-4′	8′	●		●	●	●	●	
A	B	D	3′-4′	8′	●		●	●	●	●	
A	D	D	3′-4′	8′	●		●	●	●	●	
B	B	D	4′	8′	●		●	●	●	●	
B	D	D	4′	8′	●		●	●	●	●	
C REPAIRED	D	D PLY NEXT TO FACE C OR BETTER	4′	8′	●		●	●	●	●	
C	D	D	4′	8′		●	●	●	●	●	
C	D	D	4′	8′		●	●	●	●	●	
B	B	C	4′	8′					●	●	
C REPAIRED	D	D	4′	8′	7 PLY 1⅛" ONLY						

Panels ⅜" and thinner have minimum of 3 plys; ½" to ¾" inclusive are 5-ply minimum; thicker panels have 7-ply minimum. If more plys per thickness are desired they may be had on special order. Also available are king size panels (12′, 14′, 16′, 20′ and longer).

- special surface patterns
- overlaid panels
- special items







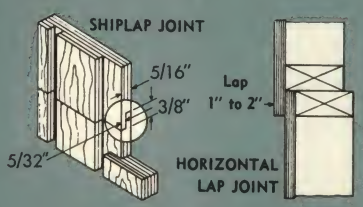


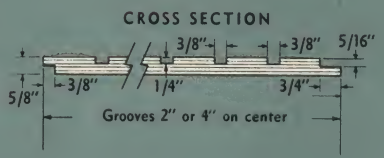


KIND	GRADE-TRADEMARK EDGEBRAND	BACKSTAMP	DESCRIPTION
TEXTURE ONE-ELEVEN EXTERIOR	TEXTURE 1-11 · EXT-DFPA		Exterior type with parallel grooves ¼" deep, ⅜" wide. Unsanded, shiplapped edges.
BRUSHED, EMBOSSED AND STRIATED EXTERIOR-INTERIOR	EXT-DFPA INT-DFPA		Grain of panel face accented to give depth and dimension. Both Exterior and Interior-types.
MEDIUM-DENSITY OVERLAID PLYWOOD EXTERIOR	EXT-DFPA		Exterior type plywood with a smooth, hard, fused-resin fiber overlay.
HIGH-DENSITY OVERLAID PLYWOOD EXTERIOR	EXT-DFPA		Exterior plywood with hard translucent fused-resin fiber overlay. Slight grain pattern. Abrasion resistant.
PLYRON® EXTERIOR-INTERIOR	EXT-DFPA · PLYRON INT-DFPA · PLYRON		Hardboard faced one or both sides. Available in Interior or Exterior types.
NATURAL FINISH N-D INTERIOR	INT-DFPA · N-D		Cabinet quality. One special side select, all heartwood veneer. Solid core construction.
NATURAL FINISH N-N INTERIOR	INT-DFPA · N-N		Cabinet quality. Both sides select, all heartwood veneer. Special solid core construction.
MARINE EXTERIOR	MARINE · EXT-DFPA		Exterior-type panels. Special solid core construction for marine use. Available also in overlay grades.

special surface patterns

TEXTURE ONE-ELEVEN





Texture One-Eleven panels have deep parallel grooves cut in the face to create a rhythmic, stylized design effect. All panels are made with 100% waterproof glue, and bear the EXT-DFPA grade trademark. Surface is slightly rough (unsanded) and contains small knot holes and other natural wood characteristics. Weathering will produce small checks. However, properly finished these blend into the natural beauty of the panel. All plys in standard Texture One-Eleven are of Douglas Fir (also available in sanded faces and other western soft woods from some producers.) Standard Texture One-Eleven also permits tight knots up to 1½"; knot holes up to 1" in least dimension; splits up to ⅛". Faces are free from patches or tape. Backs are not grooved. Edges are rabbeted to form continuous pattern without evidence of joints.

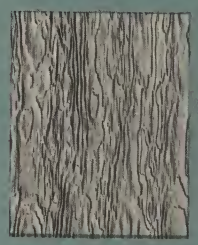
Nailing: Use 8d galvanized casing nails. Drive flush but do not set. When nails are 4" o.c. along all four edges and 8" o.c. on intermediate studs neither sheathing nor diagonal bracing is needed.

Finishing: For any outdoor use the recommended finish is a highly pigmented exterior stain. For interior use almost any paint or stain finish may be used for either single or multi-tone effects.

USES	WIDTH	LENGTH	THICKNESS 1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Siding, gable ends, patio fences, interior paneling or where textured accents are desired.	16" 32", 48"	8', 10'					●	
Textured paneling, built-ins, counter facings, displays. For siding and gable ends use Exterior-type only.	4'	8'		●	●			
Especially surfaced for painting. Exterior siding, soffits, etc. Kitchen cabinets and signs.	12", 16" 24", 48"	8'			●	●	●	●
Concrete form work, signs, cabinets. Industrial uses.	4'	8'			●	●	●	●
Concrete forms, counter tops, shelving, cabinet doors and built-ins.	4'	8'				●	●	●
Furniture having a natural finish. Cabinet doors, paneling, built-ins.	4'	8'	●					
Furniture having a natural finish. Cabinet doors, paneling, built-ins.	4'	8'					●	
Boat hulls, cabins and other marine application.	4'	8' ALSO LONG LENGTHS	●	●	●	●	●	●

Panels 3/8" and thinner have a minimum of 3 plys; 1/2" to 3/4" inclusive are 5-ply minimum; thicker panels have 7-ply minimum. If more plys per thickness are desired they are available on special order.
Medium density and high density overlaid plywood panels are also available in longer lengths on special order.

BRUSHED, EMBOSSED AND STRIATED



Brushed



Embossed



Striated

decorative surfaces: Handsome decorative surfaced plywood panels are available in grooved, brushed, embossed or striated patterns.

overlaid panels



High density overlay



Medium density overlay

medium density overlaid fir plywood is Exterior type plywood with a resin impregnated fiber added to one or both sides of the panel. Its surface has been especially developed as a superior paint base.

high density overlaid fir plywood is Exterior type plywood with a resin impregnated fiber added to both sides of the panel. Highly abrasion resistant, its surface is impervious to moisture penetration or absorption, making it ideal for a variety of applications.

For additional information write DFPA, Tacoma 2, Washington

floors*

In floor construction fir plywood can be used to advantage in 3 separate applications. (1) subflooring, (2) underlayment, (3) combined subflooring and underlayment.

walls*

For extra strength and rigidity without corner bracing, use PlyScord, the unsanded sheathing grade. If unusual moisture conditions exist, use EXT-DFPA C-C Grade.

roofs*

Firm, solid roof decks that hold nails well are possible with fir plywood. PlyScord or PlyScord with Exterior glue are the recommended grades. When the edges of the roof are directly exposed to the weather, such as at the eaves, use a starter strip of Exterior fir plywood.

building codes*

For more than 20 years, the Uniform Building Code has accepted fir plywood. The Building Officials Conference of America Code, the Southern Building Code and many other individual city, county and state codes also accept fir plywood.

*Additional construction data is available in the DFPA Construction Guide.

PLYWOOD THICKNESSES, SPANS AND NAILING RECOMMENDATIONS
(Plywood Continuous Over 2 or More Spans; Grain of Face Plys Across Supports)

Application	Recommended Thickness	Max. Spacing of Supports (C. to C.)	Nail Size and Type	Nail Spacing	
				Panel Edges	Intermediate
Subflooring or Subfloor Underlay	1/2" (a)	16" (b)	6d Common (c)	6"	10"
	5/8" (a)	20"	8d Common (c)	6"	10"
	3/4" (a)	24"	8d Common (c)	6"	10"
	2.4.1. (a)	48"	8d Ring Shank (c)	6"	6"
Underlayment	3/8" (d)		6d Ring Shank or Cement Coated F.H.	6"	8" Each Way
	5/8"		8d Ring Shank or Cement Coated F.H.	6"	8" Each Way

If supports are not well seasoned, use ring-shank nails.

(a) Provide blocking at panel edges for carpet, tile, linoleum or other non-structural flooring. No blocking required for 25/32" strip flooring.
(b) If strip flooring is perpendicular to supports 1/2" can be used on 24" span.
(c) If resilient flooring is to be applied without underlayment, set nails 1/16".
(d) FHA accepts 1/4" plywood.

PLYWOOD THICKNESS, SPANS AND NAILING RECOMMENDATIONS

Application	Recommended Thickness	Max. Spacing of Supports (C. to C.)	Nail Size and Type	Nail Spacing	
				Panel Edges	Intermediate
Sheathing	5/16"	16" (a)	6d Common	6"	12"
	3/8" - 1/2"	24"	6d Common	6"	12"
	5/8"	24"	8d Common	6"	12"
Panel Siding	3/8"	16"	6d Box or Casing (b)	6"	12"
	1/2" or Thicker	24"	8d Box or Casing (b)	6"	12"
Lap Siding or Bevel Siding	3/8"		6d Box or Casing (b)	One nail per stud along bottom edge and 4" at vertical joints.	8" vertical spacing on intermediate studs.
	1/2" or Thicker		8d Box or Casing (b)		

(a) Apply with face grain perpendicular to supports for maximum strength and stiffness.
(b) Use non-corrosive (hot-dipped galvanized or aluminum) nails.

PLYWOOD THICKNESS, SPANS AND NAILING RECOMMENDATIONS
(Plywood Continuous Over 2 or More Spans; Grain of Face Plys Across Supports)

Plywood Thickness	MAXIMUM SPACING OF SUPPORTS (C. to C.) (Total Roof Load, Pounds Per Square Foot)				NAIL SIZE AND TYPE	NAIL SPACING	
	20	30	40	50		Panel Edges (when over framing)	Intermediate
5/16" Rough	20" (a)	20"	20"	19"	6d Common	6"	12"
3/8" Rough	24" (a)	24"	24"	23"	6d Common	6"	12"
1/2" (b) Rough	32" (a)	32"	30"	29"	6d Common	6"	12"
5/8" (b) Rough	42" (a)	42"	39"	36"	8d Common	6"	12"
3/4" (b) Sanded or Rough	48" (a)	47"	42"	39"	8d Common	6"	12"
13/16" (b) Rough	60" (a)	53"	48"	45"	8d Common	6"	6"

(a) These spans shall not be exceeded for any load condition.
(b) Provide adequate blocking, or suitable edge support, such as Plyclips, when span exceeds 28" for 1/2", 32" for 5/8", 36" for 3/4" and 40" for 13/16".
For special case of plywood continuous over 2 spans only, spans may be increased 6-1/2%, except as limited by foot note (a) above, or loads may be increased 20% for the same span.

FHA requirements*

When the minimum property standards of the FHA are met for each use, this agency allows the use of plywood in all parts of the home. This table sets out the basic FHA requirements.

floors MINIMUM THICKNESSES, SPANS AND NAILING SCHEDULES

(Grain of Face Plys Across Supports; Stagger All Panel End Joints)

APPLICATION	MINIMUM THICKNESS	MAXIMUM JOIST SPACING (C-C)		NAIL SIZE AND TYPE	NAIL SPACING	
		Wood Strip Flooring	Wood Block or (a), Resilient Flooring		Panel Edges	Intermediate
Subflooring	1/2"	16" (b)	16"	8d Common or 6d Threaded	6"	10"
	5/8"	20" (b)	20"	8d Common or 6d Threaded	6"	10"
	3/4"	24"	24"	8d Common or 6d Threaded	6"	10"
Underlayment	1/4"			6d Ring Shank or Cement Coated F. H.	6"	8" Each Way

(a) Solid blocking shall be installed under all edges at right angles to joist except when a separate underlayment material is installed over subfloor.

(b) May be 24 inches o. c. if 25/32 inch wood strip flooring is installed at right angles to joists.

walls MINIMUM THICKNESSES, SPANS AND NAILING SCHEDULES

APPLICATION	MINIMUM THICKNESS	MAXIMUM STUD SPACING (C-C)	NAIL SIZE AND TYPE	NAIL SPACING	
				Panel Edges	Intermediate
Sheathing	5/16"	16"	6d Common	6"	12"
	3/8"	24"	6d Common	6"	12"
Panel Siding Over Sheathing	1/4"	24" (c)	Corrosion Resistant 1" Stud Penetration	6"	12"
Panel Siding No Sheathing	3/8"	16"	Corrosion Resistant 1-1/2" Stud Penetration	6"	12"
	1/2"	24"			
Lap Siding (a) Over Sheathing	1/4"	24" (c)	Corrosion Resistant 1" Stud Penetration	If siding is wider than 12", add nail to stud at center of piece.	
Lap Siding (b) No Sheathing	3/8"	16"	Corrosion Resistant 1-1/2" Stud Penetration		
	1/2"	24"			
Soffits, Carports, Porches, etc.	1/4"	16"	Corrosion Resistant 1-1/2" Support Penetration	6"	12"
	3/8"	24"			
Interior Walls and Ceilings	1/4"	16"	11 to 12 Gauge Casing or Finishing Nails 3/4" Support Penetration	6" on Ceiling 8" on Walls	
	3/8"	24"			

(a) Minimum headlap:
(1) Width, 12 inches or less, 1 inch.
(2) Width, over 12 inches, 1½ inches.

(b) Minimum headlap, 2 inches.

(c) Except when sheathing or interior finish requires lesser spacing.

roofs MINIMUM THICKNESSES, SPANS AND NAILING SCHEDULES

(Grain of Face Plys Across Supports; Stagger All Panel End Joints)

PLYWOOD THICKNESS	MAXIMUM SUPPORT SPACING (C-C)					NAIL SIZE AND TYPE	NAIL SPACING	
	Asphalt or Wood Shingles or Shakes		Built-up Roofing (a)		Slate, Clay Tile or Asbestos-Cem. Shingles		Panel Edges	Intermediate
	Blocked (b)	Unblocked	Blocked (b)	Unblocked	Unblocked			
5/16"	16"	16"	16"	..	..	6d Common (c)	6"	12"
3/8"	24"	20"	24"	16"	..	6d Common (c)	6"	12"
1/2"	32"	24"	32"	20"	16"	8d Common (c)	6"	12"
5/8"	42"	28"	42"	24"	24"	8d Common (c)	6"	12"
3/4"	48"	32"	48"	28"	32"	8d Common (c)	6"	12"

(a) Flat roofs used for walking traffic such as sun decks shall use same construction as subflooring.

(b) Blocking of edges shall be by accurately cut wood blocking or by extruded aluminum clip designed for this purpose.

(c) Or 5d threaded nails for 5/16" and 3/8" plywood and 7d threaded nails for other thicknesses.

working and finishing

Cutting For most work a 10-point cross-cut saw works best. For curves, use a sharp, fine-toothed coping saw. In power saws, a combination blade filed with less than normal hook is ideal. Set the blade to protrude through the panel ½" or less.

Drilling When drilling plywood, use a 120° point for a smooth hole. Machine bits are satisfactory. A wood chip breaker is recommended.

Fastening Plywood holds nails well. They can be placed near the edges without fear of the panel splitting. Spiral or ring-shanked nails give extra holding power. Screws, bolts and other special fastenings may be used. Pre-drill screw holes, and countersink with caution. Washers give bolts a bearing surface.

Gluing Panel edges and faces may be glued. Proper gluing techniques will increase strength and rigidity and make the glue joints stronger than the wood itself. For exterior applications a resorcinal or phenolic type glue is recommended. Follow the glue manufacturer's directions. Nails or screws can be used to maintain pressure.

Finishing Paint plywood as you would regular wood. Top grade exterior house paints (TLZ or white lead and oil base) give excellent service. Stains do not provide a protective film and checking may be expected. Seal all panel edges with a heavy coat of exterior primer. Prime the panel backs in unusually damp localities.

*Write DFPA for complete details on how to buy, finish and work fir plywood.

components

Component construction is one of today's newest construction techniques. It eliminates the necessity of erecting a building board by board, panel by panel, and nail by nail.

Now buildings are assembled fabricated unit by fabricated unit, and components of fir plywood are being used everywhere—even in high priced custom homes.

But plywood components are not really new. DFPA has researched their design and fabricating techniques since 1938. Gusset plates, stressed skin and sandwich panels, box beams, and curved panels of plywood have been studied. Roof, flooring and other similar structural systems have also been studied, and they will be available to you soon.

box beams



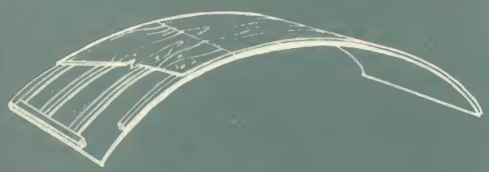
A highly versatile component spanning distances up to 120 ft., box beams utilize the structural soundness and inherent physical properties of plywood to achieve new and economical building concepts.

They consist of one or more vertical plywood webs laminated to seasoned lumber flanges. Vertical lumber spacers separate the flanges at intervals along the beams length to distribute the concentrated loads and prevent web buckling.



curved panels





A "natural" for contemporary roofs, the arching action of these panels permits spanning great distances with a relatively thin cross section.

High in esthetic value they are available in three types: the sandwich or honeycombed paper core panel, the hollow stressed skin panel, and the solid core.

structural systems

DFPA's structural systems research has also included the rigid frames and folded plate roofs shown here.

The techniques developed in these structural systems is the result of DFPA's long experience in engineering research, quality control and product testing for the plywood industry.

rigid frames



Rigid frame construction is ideal in warehouses, farm buildings, and other similar light construction.

Clear spans of 50 ft. and more are possible with the added advantage of openness and plenty of head room.

The individual frames are easy to construct for they have a minimum number of parts. Unlike other components they require no gluing.



stressed skin panels





Most adaptable of the modern building components, are the stressed skin panels. They are used in floors, walls, and roofs, and as computer platforms or pallets in industry.

Rectangular in shape they are constructed of plywood and seasoned lumber. The simple framing and plywood skins act as a unit to resist loads.

Glue joints transmit the shear stresses making it possible for the structure to act as one.

trusses





Oldest among components is the truss. Its development made open room construction a reality. And because a truss is only as good as the joints which fasten it together, fir plywood gusseted trusses are best.

When plywood gusset plates are used on both sides of a joint, they eliminate eccentricity which tends to cause twisting.

advantages

Fir plywood components offer many advantages:

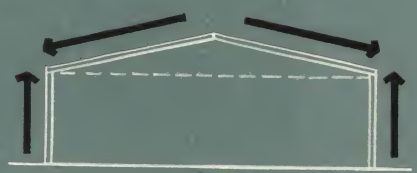
- Reduced in-place costs
- Quality construction
- Uniform manufacture
- Modular construction
- Precision fit
- Select materials
- Design freedom
- Simple construction
- Attractive appearance
- Rapid delivery

To fill the need for quality controlled components in the construction industry, DFPA established Plywood Fabricator Service, Incorporated, a non-profit affiliate organization. It is devoted to the independent, impartial quality control of components for the fabrication industry. Pilot programs are now being inaugurated.

For detailed information write:

Douglas Fir Plywood Association
1119 A Street
Tacoma 2, Washington
Attention Department S-60

folded plate roofs





Folded plate roofs are thin skins of fir plywood reinforced by purlins to form shell structures that can utilize the high reserve diaphragm strength of plywood.

They eliminate trusses and other such members. The tilted planes lean against one another acting as giant "V" shaped beams supported by walls or columns. Large buildings such as schools, warehouses, and stores are typical uses for this roofing method.

design data

Additional design data for these structural systems is available from the Technical Department, Douglas Fir Plywood Association, Tacoma 2, Washington.

When writing please request the laboratory report on: Design Method for Plywood Folded Plate Roofs.

Plans for Rigid Frame Structures Spanning 32 and 40 ft. are available from DFPA.

fir plywood forms permit greater freedom in the design of concrete structures

Fir plywood concrete forms first made it possible to economically use concrete in architectural design. No other development in the construction field has been more widely or quickly adopted and used.

This universal form material has reduced costs and offered greater design freedom as the result of rigid industry standards that control the manufacture of PlyForm and Overlaid plywood. Extensive laboratory and field tests as well as surveys among architects, engineers and contractors helped establish these standards.

interior and exterior PlyForm
high density overlaid
fir plywood

allowable support spacing →

(Basis for the preparation of charts)

Support spacings for the various thicknesses of PlyForm panels continuous across two or more spans with their face grain perpendicular* to the supports are shown in the chart.

When spans exceed 10", 12" and 14" for ½", ⅝" and ¾" plywoods respectively, the spacing is limited by an allowable deflection of 1/270th of the span. If the spans are less, the spacing is limited by a permissible stress of 2000 p.s.i. The stress in bending for dry PlyForm, which is 1875 p.s.i., has been reduced one-fifth for the effect of wetting and increased one-third for short-time loading. Additional consideration has also been given to moisture conditions by reducing the stiffness value 20%.

*special conditions

When the face grain is parallel with the supports apply the following percentages:

For ½" thickness, use 40% of load on chart;
For ⅝" thickness, use 51% of load on chart;
For ¾" thickness, use 73% of load on chart;
For any given span and allowable deflection.

When panels are used on a single span, stiffness is only half that shown on chart.

concrete form framing lumber working stress (1)

Kind and Grade	Extreme Fiber in Bending	Compression Perpendicular to Grain	Compression Parallel to Grain L/d ≦ 10	Horizontal Shear	Modulus of Elasticity
Coast Region Douglas Fir Const.	1500	390	1200	120	1,760,000
Douglas Fir Standard	1200	390	1000	95	1,760,000
Southern Pine No. 1	1500	390	1350	120	1,760,000
Southern Pine No. 2	1200	390	900	105	1,760,000
West Coast Hemlock Const.	1500	365	1100	100	1,540,000
Eastern Spruce—1200f	1200	300	900	95	1,320,000

(1) Working stresses (except Modulus of Elasticity) may be increased up to ⅓ over these tabulated values when load is of short duration, such as the time required for concrete to set. (Data from National Lumber Manufacturers Association.)

suggested concrete design pressures lbs. per sq. ft.*

Rate of Pour Ft./hr.	VIBRATED		UNVIBRATED	
	at 50° F.	at 70° F.	at 50° F.	at 70° F.
2	650	550	450	350
3	900	650	600	450
4	1050	750	750	550
5	1200	900	900	650
6	1350	1050	1050	750
7		1200	1200	850
8		1350	1350	950
9				1050

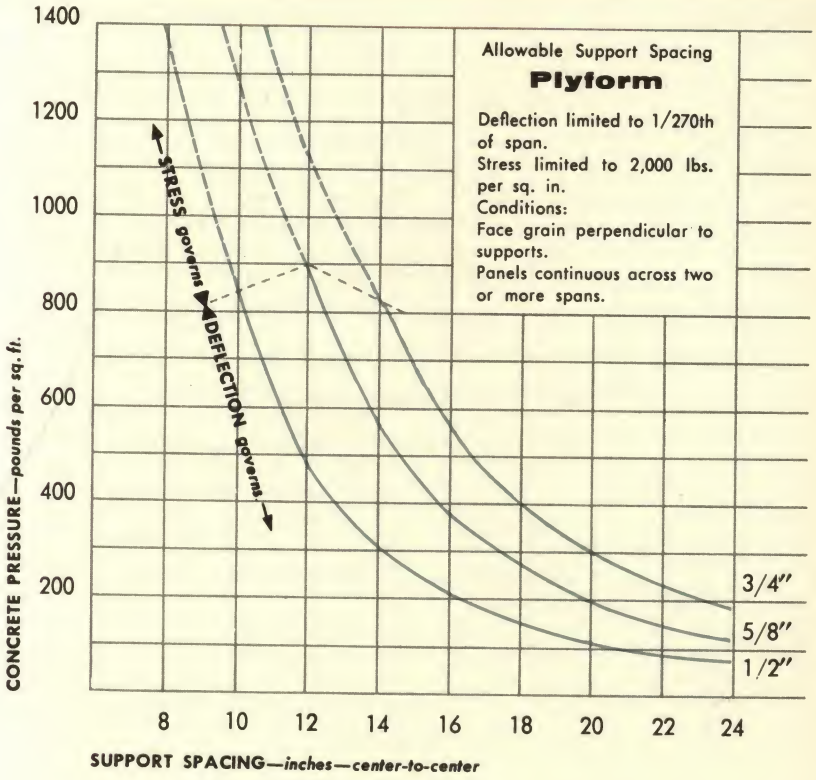
Depth-D; at Maximum Pressure-P;

A. Vibrated $D = \frac{P}{150}$ B. Unvibrated $D = 2 + \frac{P}{150}$

NOTE: In case form height is less than D (Depth at Maximum Pressure), design pressure may be reduced by proportion of form height to D. For example, with a 5' high wall poured with unvibrated concrete at 70° at 6'/hr., Maximum Pressure is 750 psf, and $D = 2 + \frac{750}{150} = 7'$

Then design pressure would be $\frac{5'}{7'} \times 750 = 536$ psf

*Test data indicate much variation in concrete pressures. The above values are suggested where better data are lacking. They are taken from "Design Assumptions for the New Keely PlyForm Calculator," by M. L. Elkins, Registered Professional Engineer, and include data furnished by the Universal Form Clamp Co. for vibrated concrete.



how to use this graph

In many cases other deflection limitations and stresses are required. They can be determined by taking an appropriate proportion of the concrete pressure. For example:

CONDITION: A minimum deflection of 1/360th the span length is required and ¾" PlyForm on 18" centers is being considered.

PROBLEM: Determine the effective concrete pressure and the correct support spacing for this allowable deflection.

SOLUTION:

Step 1. Enter the graph with known factors and determine, from the curve, the allowable pressure for a 1/270th span using ¾" plywood on 18" centers. It is 400 psf.

Step 2. Deflection varies in proportion to the pressure, therefore:

$$\frac{270}{400} = \frac{360}{X} = 533 \qquad \therefore X = 533 \text{ psf effective pressure.}$$

Step 3. Re-enter the graph and select the correct support spacing for ¾" plywood under a 533 psf pressure. It is: 16" on centers.

Strictly speaking, adjustments should be made only on that part of the curve which corresponds to the correction.

Deflection corrections are found on the lower part of the curve, and stress corrections on the top. These values apply equally to Interior and Exterior PlyForm.

Stresses, but not deflection values, for the other grades (EXT A-A and A-B) which are occasionally used in concrete forming could be increased.

Grade A-A because it has better veneers may be increased 16% and A-B 7%. High Density Overlaid panels may also be increased for stress and stiffness because the surfaces are impervious to water preventing the plywood from becoming saturated when in use.

treating concrete forms

on the job

Reasonable care in using plywood forms will mean longer life and maximum re-use.

"Dope" all edges, saw cuts, and blemishes with lead and oil, aluminum primer, shellac or the like. Carefully prime cut edges.

Lower, do not drop, forms from high places to prevent damaging the working surfaces.

stripping

Careless stripping can destroy the best form materials.

Do not use metal bars or prys. Use wooden wedges. Plywood's resilience distributes the pull over a large area and minimizes damage. Double headed nails speed work and reduce form damage.

storing

Immediately after stripping, remove projecting nails, then clean and scrape the panels thoroughly with a wide, blunt blade.

Oil and stack panels on a dry, level surface protected from the weather. Use stickers to permit normal drying. DO NOT store under tarpaulin or plastic covers preventing the circulation of air.

planning

Advance planning and careful detailing will help gain a maximum re-use of the forms with little waste. Normally, forms wear out as the result of careless handling or having been cut into pieces too small to have further value. Whenever possible, prefabricate forms and standardize the tie holes with templates. For stud spacing, use jigs.

oiling

Unless otherwise specified, PlyForm panels are mill oiled and ready for the initial pour. After each use, clean and re-oil the panels with a good uniform coating of form oil such as a 100 pale. Use just enough to make the surface greasy to the touch.

High Density Overlaid fir plywood is not mill oiled, but its special surface needs no lubrication for the initial pour. Wiping with an oil rag before each use will, however, make stripping easier.

nailing

Use as small and as few a number of nails as possible in the forms. When nailing to studs use nothing larger than 5d in plywood up to ⅝", 6d in ¾" and in ¼" liners, 2d.

DFPA TESTED QUALITY

suggested specifications

medium density overlaid fir plywood

All Medium Density Overlaid Fir plywood shall be of Exterior type with (one) or (both) faces of Medium Density overlay. Each panel shall carry the Douglas Fir Plywood Association edge brand EXT-DFPA.

Thickness and application details shall be as shown on the drawings.

plywood identification requirement

All fir plywood shall conform to the performance standards for its type in Commercial Standard CS45-55 for Douglas Fir Plywood. It shall further be attested to such conformance by means of DFPA grade-trademarks on each panel.

exterior type douglas fir plywood

All plywood permanently exposed to the weather shall be of Exterior type, manufactured in accordance with U. S. Commercial Standard CS45-55. Each panel shall carry the EXT-DFPA grade-trademark of the Douglas Fir Plywood Association as evidence of a waterproof glue-line.

douglas fir plywood

All plywood used for (specify e.g. subflooring, underlayment, roof sheathing, etc.) shall be of (specify type and grade) Douglas fir plywood, manufactured in accordance with U. S. Commercial Standard CS45-55. Each piece shall carry the (state grade) grade-trademark of the Douglas Fir Plywood Association.

Thickness and application details shall be shown on the drawings. Interior types shall have no edge or surface permanently exposed to the weather. Nailing shall be as indicated on engineering drawings or as recommended by the DFPA.

other data available

This catalog provides only basic information for the specifier and user of Douglas fir plywood. If additional information is required write Douglas Fir Plywood Association, 1119 "A" Street, Tacoma 2, Washington.

U. S. Commercial Standard CS 45-55

U. S. Commercial Standard CS 122-56
(for Western softwood plywood)

Technical Data Handbook

Construction Guide

Basic Facts About
Fir Plywood Diaphragms

DOUGLAS FIR PLYWOOD ASSOCIATION

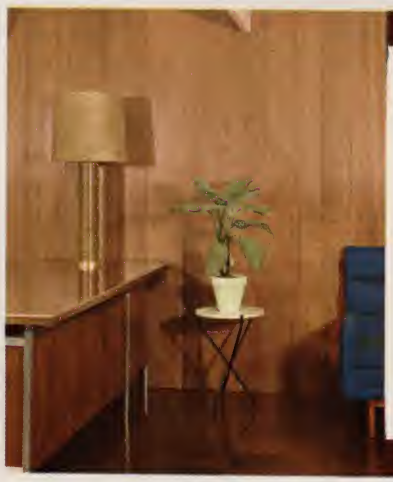
1119 A Street - Tacoma 2, Washington - BRoadway 2-2283

Prepared by Douglas Fir Plywood Association, Tacoma, Washington

Form No. S-40

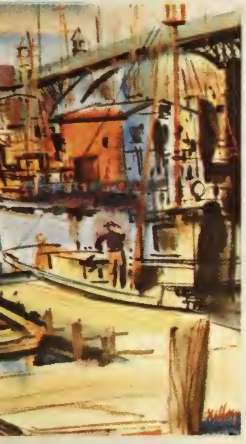


GP
GEORGIA-PACIFIC



DECORATIVE PLYWOOD

	page
Factory-Finished Hardwood Paneling	A2-A11
Hardwood Plywood	A12-A13
Textured Plywood Paneling	A14-A15
Softwood Plywood	A16



GEORGIA-PACIFIC

factory-finished hardwood paneling

in eight wood species

Features

THE LUXURY LOOK—Genuine hardwood paneling with naturally beautiful grain patterns adds that extra bit of luxury to any room.

FAMILY PROOF—No need to worry, the face veneers are protected with Georgia-Pacific's new Family-Proof finish.

PERMANENT BEAUTY—New invisible topcoat gives permanent protection to the fine veneers.

PRACTICAL—Beautiful, yet ideal paneling for kitchen and family room walls.

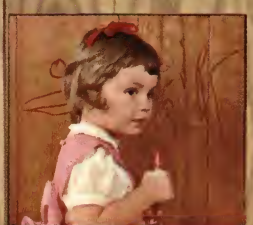
LOW COST—No upkeep or replacement problems. Lasts longer, costs less over the years than other wall coverings.

EASY TO INSTALL—Large size panels go up quickly and easily with either nails or contact cement.

SIMPLE MAINTENANCE—Soil, stains, even sticky finger marks disappear with a damp cloth.

TESTED—G-P Family-Proof finish meets rigorous Government tests for Institutional Furniture finishes.

GUARANTEED—G-P Family-Proof paneling is guaranteed against structural defects for the life of the installation.



Stains
can't mar

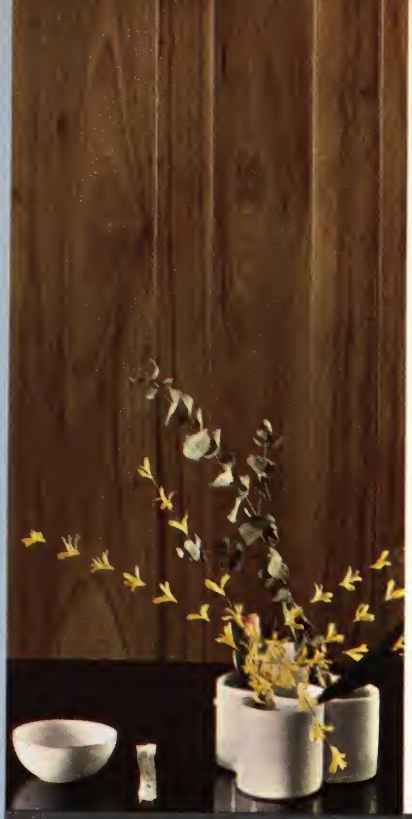


Soil
wipes off



Spattered liquids
wipe off easily

Here in Greymist Ash



AMERICAN BLACK WALNUT

The deep color and exquisite grain pattern lends proud dignity to your most important rooms. And the beauty of this wood is so classic, the new finish so durable, this G-P Paneling will add distinction to your decorative scheme through the year.

Factory finishing
Specification and installation data
Moldings
Page A11

	width	length	corrugated carton package: pieces (with slip sheet)	corrugated carton package: sq. ft.	thickness	no. plys	face grade	inner* ply grade	adhesive bond	edge	wt. lb. per M sq. ft.	** retail price per sq. ft.
V-groove panels	4′	7′ 8′ 9′ 10′	10 10 6 6	280 320 216 240	¼″	3	paneling grade	solid	interior type 2	v-joint butt	750	.76

*Commercial standard CS35-56 **Based on 7′ or 8′ panels—9′ and 10′ slightly higher



factory-finished hardwood plywood paneling

AMERICAN CHERRY

The rich simplicity of the color and grain in this hardwood is equally at home with Traditional or Contemporary furnishings. A pleasant, natural background for gracious living. Easy to maintain.



Factory finishing
Specifications and installation data } Page A11
Moldings

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V-groove panels	4′	7′ 8′ 9′ 10′	10 10 6 6	280 320 216 240	¼″	3	paneling grade	solid	interior type 2	v-joint butt	750	.76

*Commercial standard CS35-56 **Based on 7′ or 8′ panels—9′ and 10′ slightly higher





BLOND OAK

The cool, pure beauty of this genuine hardwood gives your finest furniture the background it deserves.

HONEYTONE OAK

New G-P "family-proof" finish protects the warm, natural tone of Honeytone Oak

Factory finishing
Specification and installation data
Moldings
Page A11

	width	length	corrugated carton package: pieces (with slip sheet)	corrugated carton package: sq. ft.	thick-ness	no. plys	face grade	inner* ply grade	adhesive bond	edge	wt. lb. per M sq. ft.	** retail price per sq. ft.
V-groove panels	4′	7′ 8′ 9′ 10′	10 10 6 6	280 320 216 240	¼″	3	paneling grade	solid	interior type 2	v-joint butt	1075	*Blond Oak .63 Honeytone Oak .56

*Commercial standard CS35-56 **Based on 7′ or 8′ panels—9′ and 10′ slightly higher



factory-finished hardwood plywood paneling

FLAME GUM

Flame Gum paneling gives character and distinction to any room. New invisible topcoat guards the beauty of the wood—makes this paneling an easy-to-keep wonder for children's rooms, too.



Factory finishing
Specifications and installation data
Moldings
} Page A11

	width	length	corrugated carton package: pieces (with slip sheet)	corrugated carton package: sq. ft.	thickness	no. plys	face grade	inner* ply grade	adhesive bond	edge	wt. lb. per M sq. ft.	** retail price per sq. ft.
V-groove panels	4′	7′ 8′ 9′ 10′	10 10 6 6	280 320 216 240	¼″	3	paneling grade	solid	interior type 2	v-joint butt	750	.48

*Commercial standard CS35-56 **Based on 7′ or 8′ panels—9′ and 10′ slightly higher





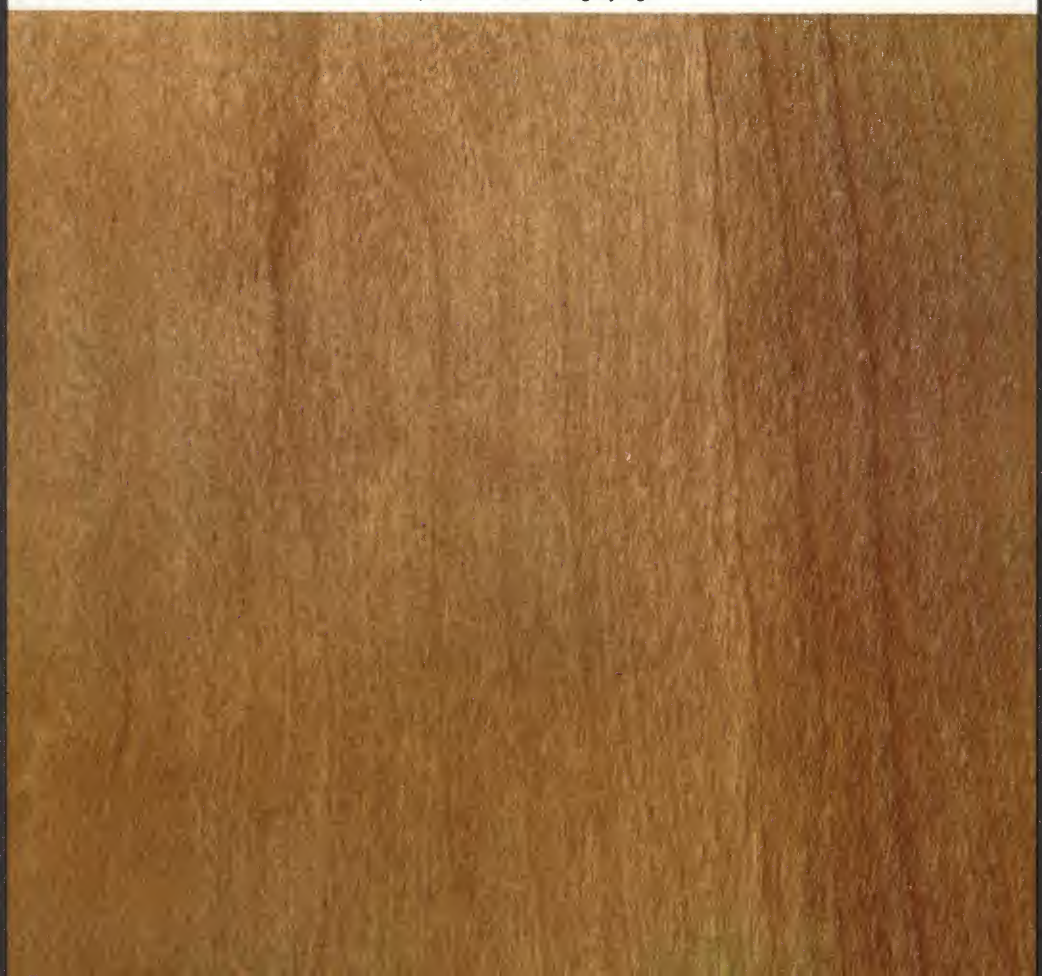
ADIRONDAK BIRCH

Here's elegant simplicity for a dining wall or room, a charming background for bedroom or den. Genuine Birch brings out the rich tones in furniture, fabrics, pictures. See how one inexpensive wall can add an air of luxury to a whole room.

Factory finishing
Specification and installation data
Moldings
Page A11

	width	length	corrugated carton package: pieces (with slip sheet)	corrugated carton package: sq. ft.	thickness	no. plys	face grade	inner* ply grade	adhesive bond	edge	wt. lb. per M sq. ft.	** retail price per sq. ft.
V-groove panels	4′	7′ 8′ 9′ 10′	10 10 6 6	280 320 216 240	¼″	3	paneling grade	solid	interior type 2	v-joint butt	750	.60

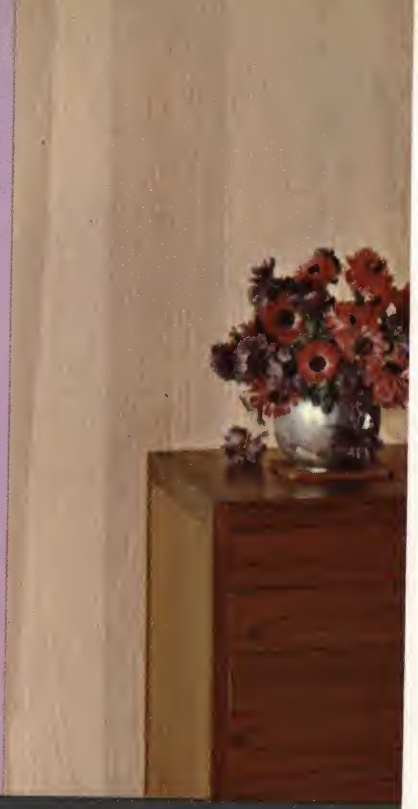
*Commercial standard CS35-56 **Based on 7′ or 8′ panels—9′ and 10′ slightly higher



factory-finished hardwood plywood paneling

GREYMIST ASH

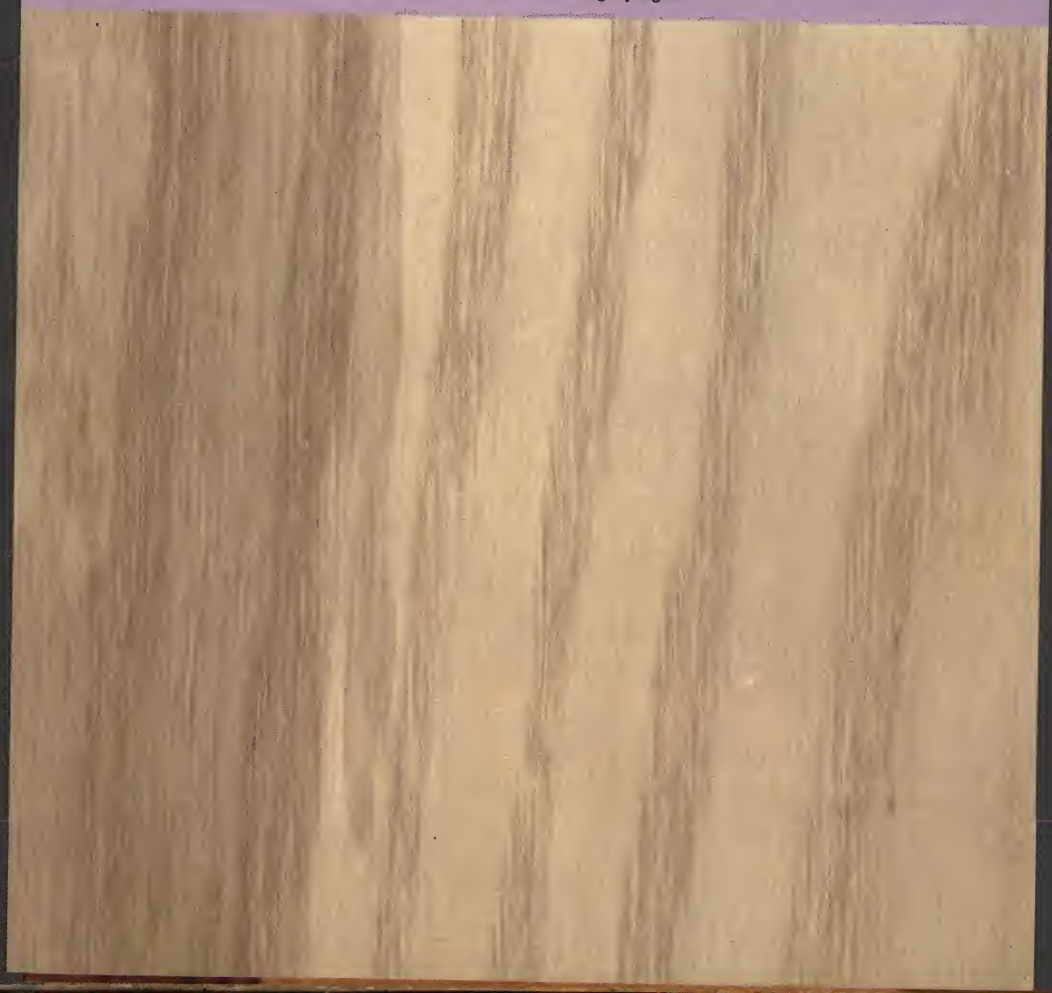
Adds dimension and distinction to rooms of any size. Ideal for either kitchen or bathroom. Even steam can't damage the new "family-proof" G-P finish. Panels are face and back-protected, edges are easy to seal. Surface cleans with a damp cloth!



Factory finishing
Specifications and installation data } Page A11
Moldings

	width	length	corrugated carton package: pieces (with slip sheet)	corrugated carton package: sq. ft.	thickness	no. plys	face grade	inner* ply grade	adhesive bond	edge	wt. lb. per M sq. ft.	** retail price per sq. ft.
V-groove panels	4′	7′	10	280	¼″	3	paneling grade	solid	interior type 2	v-joint butt	750	.61
		8′	10	320								
		9′	6	216								
		10′	6	240								

*Commercial standard CS35-56 **Based on 7′ or 8′ panels—9′ and 10′ slightly higher





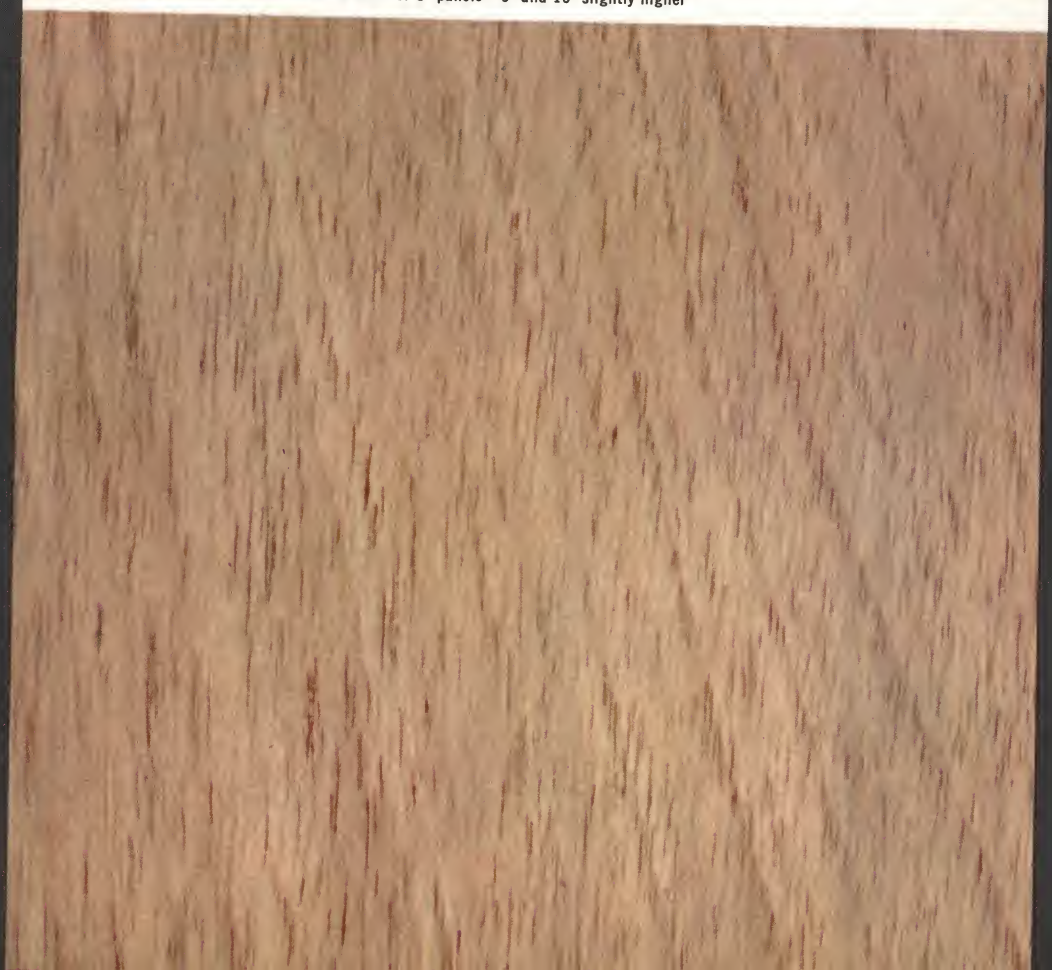
BLOND CATIVO

This delicately grained, tropical hardwood is perfectly keyed to the Scandinavian simplicity of modern furniture design, the sunny, open feeling of many modern homes. The "family-proof" finish makes it right for *any* room.

Factory finishing
Specification and installation data
Moldings
Page A11

	width	length	corrugated carton package: pieces (with slip sheet)	corrugated carton package: sq. ft.	thickness	no. plys	face grade	inner* ply grade	adhesive bond	edge	wt. lb. per M sq. ft.	** retail price per sq. ft.
V-groove panels	4′	7′ 8′ 9′ 10′	10 10 6 6	280 320 216 240	¼″	3	paneling grade	solid	interior type 2	v-joint butt	750	.51

*Commercial standard CS35-56 **Based on 7′ or 8′ panels—9′ and 10′ slightly higher



factory-finished

COTTAGE HARDWOOD PANELING

G-P Cottage Hardwood Paneling is a specially selected grade designed to emphasize the natural growth characteristics of real wood. Natural grain patterns—burls, knots, unusual grain patterns and varying colors—add a decorative charm to any wall . . . a charm that is protected by the invisible G-P "family-proof" topcoat.

Available in three woods—Birch, Oak and Walnut to fit any decorating need. Each piece is V-grooved and edges are eased for an attractive random plank effect coupling beauty with economy.





Factory finishing
Specifications and installation data } Page A11
Moldings

Cottage Paneling Species and Pattern	width	length	corrugated carton package: pieces (with slip sheet)	corrugated carton package: sq. ft.	thickness	no. plys	face grade	inner* ply grade	adhesive bond	edge	wt. lb. per M sq. ft.	retail price per sq. ft.
v-groove Birch**	4′	7′	10	280	¼″	3	cottage	solid	interior type 2	v-joint butt	750	.50
v-groove Oak	4′	8′	10	320	¼″	3	cottage	solid	interior type 2	v-joint butt	1075	.51
v-groove Walnut	4′	8′	10	320	¼″	3	cottage	solid	interior type 2	v-joint butt	780	.66

*Commercial standard CS35-56.
**Birch available in these colors: Natural, Blondtone, Greytone, Cherrytone, Mapletone and Antique.

To give an even greater selection Birch is available color-toned in five shades plus natural.











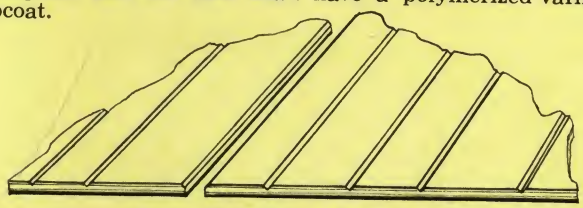
Specification data

General

All interior paneling shown on the drawings and called for in the finish schedule shall be "V-Grooved Factory-Finished Hardwood Paneling" (or V-Grooved Factory-Finished Cottage Paneling) as manufactured by the Georgia-Pacific Corporation, Portland, Oregon. Colors and woods shall be as selected by the architect and contractor shall furnish samples of each type required for the approval of the architect. Paneling shall be delivered to the job site in the manufacturer's original cartons.

Material

PANELS—G-P V-Grooved Factory-Finished Hardwood Paneling shall be V-grooved on the veneer joints and all vertical edges are to be eased for forming V-joints with adjacent panels. Panels shall be ¼" thick and 4' in width and shall be _____ in length. (Indicate length desired. See table.) Backs of all panels shall be back-sealed to prevent moisture absorption and the face shall have a polymerized-varnish topcoat.



V-groove panels — V-joint butt edges

SPECIES—G-P V-Grooved Hardwood Paneling shall be _____. (Select species from table, p. A3 through A9.)
G-P V-Grooved Factory- Finished Cottage Paneling shall be _____. (Select species from table, p. A10.)

MANUFACTURE—Panels shall be manufactured from selected veneers and graded in accordance with Commercial Standards (CS 35-56). Veneers with good color-contrasted character marks shall be arranged to achieve an attractive random effect. Cottage Paneling face veneers are special selection containing natural growth characteristics. Core ply shall be graded solid and back veneer of hardwood for balanced construction.

Factory finishing

Features

G-P factory-finished paneling is "Family-Proof" . . . the improved polymerized topcoat protects the fine veneers. Finger marks wipe off with a damp cloth. Even steam can't damage. This finish itself will show no spotting when subject to the following:

Ammonia	Oil base paint	50% Ethyl alcohol
Vinegar	Rubber base paint	2% Mercurochrome
Lipstick	Naphtha	Carbon Tetrachloride
Lemon Juice	Turpentine	Sodium Carbonate Solution
Red Ink	Sour milk	
Blue Iink	Mayonnaise	Hot vegetable fat
Mustard	Hot animal fat	

COMPOSITION—Comparable to baked enamel with approximately 50% more solids by weight than most competitive paneling finishes.

APPLICATION—G-P finish is achieved by a two-cycle roller-coating, then cured in infra-red ovens, a 14 step system that assures maximum quality control. Methods, material and equipment are the newest in the industry.

HEAT RESISTANCE—G-P finish resists burning to a much greater degree than the Nitro Cellulose-lacquer type coatings.

MEETS TESTS—G-P Factory-Finish meets the Government specification Mil-F-002319A tests for Institutional Furniture:

Print Test—Will not print under a pressure of 2 lbs. per square inch. (This lessens the chance of damage from bumping.)

Resistance Test—Shall resist mild acids such as found in vinegar, lemon, orange, tomato juices and salted butter.

Cold Check Resistance Test—Finish shall withstand a minimum of 10 cycles of hot and cold temperatures without checking (damage). One cycle consists of exposure for one hour at 120° F. and one hour at —10°.

Alcohol Resistance Test—50% pure Ethyl Alcohol shall be applied for 18 hours with no adverse effect after removal and drying. (This is equivalent to 100 proof liquor.)

Boiling Water Test—25 cubic centimeters of boiling water shall be poured on the finished surface and allowed to cool to room temperature. No spotting or softening shall be in evidence after water has been wiped off.

Installation data

Work included

Work included shall be the furnishing and installation (as described below) of the face paneling.

Work by others

Work by others shall include preparation of masonry walls, erecting studs, backing materials, waterproofing, insulation, etc., and shall come under the jurisdiction of other trades or subcontractors.

Nail-on installation

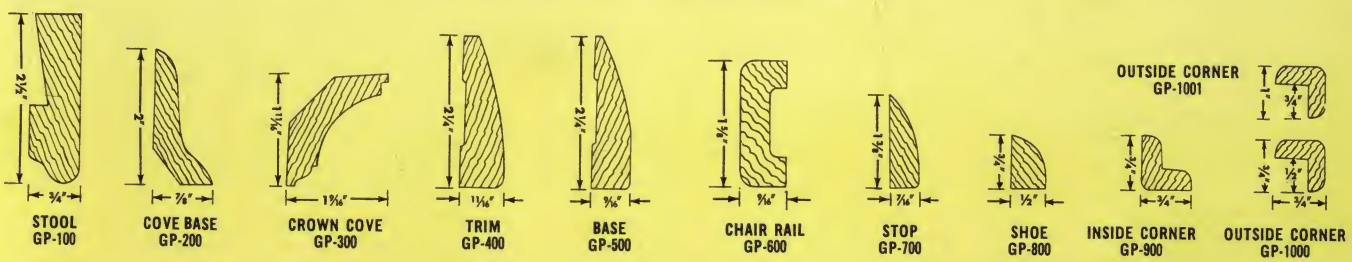
Whether application is direct to studs or over an underlayment or old wall, panel edges should join over a stud. For application direct to studs use 4-penny (1½") finish nails spaced 8" along panel edges and 12" elsewhere. Nail heads should be set 1/32" deep. For application over underlayment or old wall use 6-penny (2") finish nails spaced 4" along panel edges and 6" elsewhere. Set as above. Fill holes with G-P Putty Stick colored to match paneling.

Adhesive installation

Contact adhesives may be used in place of nails. Be certain to cut and fit each panel exactly before adhesive is applied. Once applied it is impossible to make adjustments. This method is not recommended for use over plaster walls in poor condition. Position first panel in corner so initial contact will be at corner edge, then swing into place. Follow same method for subsequent panels. Regardless of type adhesives used, manufacturer's instructions shall be followed exactly.

Factory-finished moldings

Available to match Factory-Finished paneling. Also special finishing kits for matching unfinished moldings, doors and cabinets to paneling.



hardwood plywood...

with western softwood core

(Cores comply with U.S. Commercial Standards CS 45-55 or CS 122-56)

species and face characteristics	grade information**					adhesive bond	stock sizes**			no. plies	approx. wt. lb. per M feet	retail price per sq. ft.	
	panel	face	back	inner ply* next to face	inner ply* cross bands		width	length	thickness			1/4" A-3	3/4" A-A
Ash—Unselected Brown (Calico)	A-A or A-2 or A-3	A	A or 2 or 3	B	B	Hot Press Interior	48"	72" or 84" or 96"	1/4" 3/8" 1/2" 3/4"	3 5 5 7	830 1180 1600 2335	.50	.87
Ash—White												.67	1.09
Birch—Select Red												.59	1.11
Birch—Select White												.59	1.11
Birch—Unselected												.49	.91
Cherry—Plain Sliced												.92	1.66
Mahogany—African—Flat Cut												.61	1.01
Mahogany—Rotary, Philippine												.33	.66
Mahogany—Ribbon, Philippine												.36	.77
Maple—Unselect Eastern												.48	.83
Oak—Rotary Red												.48	.91
Oak—Half Round Red												.56	.95
Oak—Plain Sliced White												.80	1.38
Oak—Rift Grain White												.92	1.66
Walnut—Plain Sliced												.92	1.66

**Other grades, widths, lengths and thicknesses available on quotation.
†Exterior glue bond upon request.
*Other core construction available.

with hardwood veneer or lumber core

(Cores comply with U.S. Commercial Standards CS 35-56 and accepted trades)

species and face characteristics	grade information†					adhesive bond	stock sizes†						wt. lb.‡ per M sq. ft.	***retail price per sq. ft.		
	panel	face§	inner plys §§ veneer core	inner plys ** lumber core	back		width†	length†	veneer core§§ thickness	veneer core§§ no. plies	lumber core§§ thickness	lumber core§§ no. plies		1/4" G1S	3/4" G2S	3/4" lbr. core G2S
Ash—Rotary Natural														.49	1.20	1.39
Birch—Rotary Natural														.47	1.13	1.31
—Rotary Select Red														.57	1.25	1.47
—Rotary Select White														.57	1.25	1.47
Cherry—Plain Sliced														.73	1.63	1.81
Elm—Plain Sliced—Brown														.65	1.41	1.56
—Rotary Natural														.49	1.20	1.39
Gum—Rotary Natural	GIS	good	mill option	basswood or aspen mill option	any species mill's option	hot press interior type 2	24", 30", 36" or 48"	4', 5', 6', 7', 8', 9' or 10'	1/8"	3			450	.29	.72	——
—Rotary Select Red									3/16"	3			600	.47	1.12	1.33
—Quartered Sliced—Medium Figured									1/4"	3			800	.73	1.63	1.79
Limba—Quartered Sliced									3/8"	5			1200	.76	1.66	1.83
Mahogany—Ribbon Stripe									1/2"	5			1600			
—African									5/8"	7			2000	.54	1.24	1.43
—Philippine									3/4"	7			2400	.46	1.14	1.29
Maple—Plain Sliced—White											3/4"	5	2400	.64	1.43	1.57
Oak—Plain Sliced Red														.59	1.38	1.59
—Rotary Cut Red														.47	1.12	1.30
—Rift Cut Red														.73	1.61	1.77
—Plain Sliced White														.67	1.49	1.66
—Rift Cut White														.73	1.61	1.77
Walnut—Plain Sliced—American Black														.79	1.72	1.89

†Other grades such as SDIS, Crownwall, Crownboard and Economy together with other widths, lengths and thicknesses on request.
§All panels have balanced matched faces except gum. When requested these species will be flitch matched and numbered: Plain sliced white and red oak; rift sliced white and red oak; plain sliced cherry; plain sliced walnut. Fancy faced woods available in 1/4" and 3/4" thickness.
*Waterproof glue upon request.
‡Surface measure—sanded 2 sides.
§§Tropical hardwood crossbands for maximum flatness and superior machinability except gum which has a gum core.
**Made from kilndried basswood or aspen lumber. Full length strips of 4" maximum width.
***Prices based on 8' panels. 9', 10' slightly higher.



Use

Hardwood plywood manufactured by Georgia-Pacific is the finest quality attainable. Fine hardwood veneers are selected, graded and laminated with a variety of cores—either hardwood veneer or lumber core or western softwood veneer core.

G-P Hardwoods offer a full selection of colors and grain patterns for use in all types of commercial and residential construction as paneling, counter fronts and tops, cabinets, built-ins, etc.

Advantages

BEAUTIFUL—The rich, natural beauty of genuine hardwood—available in its most useable form—large, easy to use Georgia-Pacific Hardwood panels.

PRACTICAL—Large size panels are simple to install, easy to remanufacture into cabinets, counter-fronts, built-ins, etc. The smooth, polish sanded surface saves time—makes finishing easy.

COMPLETE LINE—G-P Hardwoods are available in a wide range of species in both standard and special sizes and thicknesses in grades from standard through special architectural panels and with a selection of core construction.

Prices

Due to possible market adjustments prices shown are not guaranteed. To indicate a relative price range we have shown prices for only the most popular thicknesses and grade for each thickness.

GRADES—All hardwood face veneers used by Georgia-Pacific conform to U.S. Commercial Standards CS 35-56 and are classified by grade as shown below.

"A" grade conforms to "Good" grade "1" as covered in CS 36-56

"2" grade conforms to "Sound" grade "2" as covered in CS 35-56

"3" grade includes a range from "Utility" grade "3" to "Backing" grade "4" as covered in CS 35-56 at factory option

G1S—Good 1 side—Face is Grade 1—Back is Grade 4 or better

SD1S—Sound 1 side—Face is Grade 2—Back is Grade 4 or better

Finishing

Georgia-Pacific hardwoods offer a wide range of selection both as to wood species as well as a full range of grades. Proper selection of grade will present the exact face for the type of finish to be applied.

Grade A (custom) and 1 (good grade) for smooth, natural varnish, shellac or lacquer finish.

Grade 2 (sound) for smooth paint surface.

Grade 3 (Utility) for semi-smooth non-uniform paint surface.

Grade 4 for use as back grade only.

Working

CUTTING—G-P Hardwood Plywood may be sawed with either hand or power tools. Always saw with face of panel up. To avoid splintered edges on back veneer, scribe cutting mark with sharp knife.

DRILLING—G-P Hardwood Plywood may be drilled as any other wood product. For best results, face should be up and solid backing used to attain clean edges.

FASTENING—G-P Hardwood Plywood may be fastened with any of the common wood fastenings, such as nails, staples, automatic nailers, screws, etc.

GLUING—In all types of gluing of G-P Hardwoods, follow directions of glue supplier. May be glued as any other wood product.

SEALING EDGES—If moisture conditions are prevalent or humidity to be encountered is excessive edges should be sealed and backs primed prior to installation.

Specifying

Plywood shall be Georgia-Pacific plywood as manufactured by Georgia-Pacific Corporation, conforming to U.S. Commercial Standards CS 45-55 or CS 122-56 for softwood veneer core and CS 35-56 for hardwood veneer and lumber core. Total thickness of panels shall be (¾"), (⅜"), (¼"), (other)_____ (Specify one).

Faces shall be of one or more pieces of tight, smoothly cut veneer, _____ species, matched for color and grain at the joints to produce continuity of character and balanced design. Faces shall be free of open joints, face depressions, glue stains, or other manufacturing defects. Faces shall be selected for figure (selected), (natural) _____ (Specify one) for color, but shall not contain ruptured grain, doze or shake, and shall otherwise equal or exceed the grade designated for the listed species as described in U.S. Commercial Standard CS 35-56. Character markings, including a few small burls, occasional pin knots, slight color streaks or spots (shall be), (shall not be) _____ (Specify one) permitted.

Backs on plywood shall be of a species and thickness to balance face veneers and shall be CS 35-56 grade 4 or better.

Plywood shall be sanded both sides and fine belt sanded on the face.

Custom Grade Hardwood . . . to architectural specifications

Georgia-Pacific offers a complete line of special hardwoods, special matching and construction to meet all architectural specifications. This includes special selections and types of panels of a grade description agreed upon by buyer and seller. All G-P architectural panels are manufactured on order per "Custom grade" CS 35-56.

textured plywood paneling

G-P RIPPLEWOOD®

G-P's own special brushing process exposes the burnished ripples of the hard grain of old growth Douglas Fir. Just a hint of the soft grain is left to add to the beauty of this decorative surface that is immune to damage. Easy to install—nails disappear in the textured surface.

G-P STRIATED*

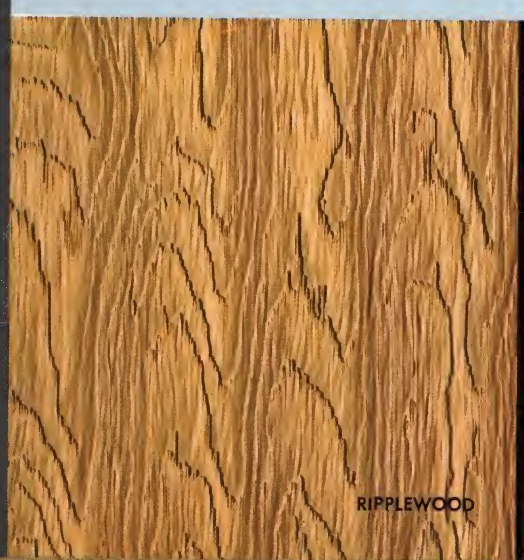
G-P's special planing process is the secret of deep, smooth striations that add depth and distinction to this textured panel from old growth Douglas Fir. Available either natural or with the new G-P Factory Coating that serves as a single coat finish or as a prime coat. Choice of exterior or interior glue line.

*U.S. Patent Number 2,782,468

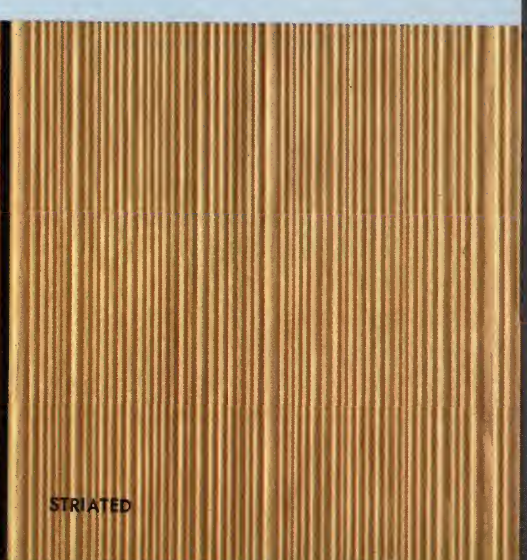


	* face grade	** inner ply grades	** back grades	adhesive bond	width	length	† thickness	no. plies	pieces per carton	sq. ft. per carton	wt. lb. per M sq. ft	retail price per sq. ft.
RIPPLEWOOD												
panels—standard	selected	D	D	†† interior	4′	8′	$\frac{5}{16}$″	3	10	320	950	.26
squares—standard					$11\frac{7}{8}$″	$11\frac{7}{8}$″	$\frac{5}{16}$″	3	50	50	950	.29
					$15\frac{7}{8}$″	$15\frac{7}{8}$″	$\frac{5}{16}$″	3	40	71	950	.29
panels—v-groove					4′	8′	$\frac{5}{16}$″	3	10	320	950	.28
FACTORY COATED - STRIATED***												
panels (interior)	A**	D	D	interior	4′	8′	$\frac{5}{16}$″	3	Not Packaged		950	.235
	A	D	D	interior	4′	10′	$\frac{5}{16}$″	3			950	.27
panels (exterior)	A	C	C	exterior	4′	8′	$\frac{5}{16}$″	3			950	.25
	A	C	C	exterior	4′	8′	$\frac{3}{8}$″	3			1300	.30
squares (interior)	A	D	D	interior	$11\frac{7}{8}$″	$11\frac{7}{8}$″	$\frac{5}{16}$″	3	50	50	950	.27
	A	D	D	interior	$15\frac{7}{8}$″	$15\frac{7}{8}$″	$\frac{5}{16}$″	3	40	71	950	.27

*From select old growth Douglas Fir
**Per CS45-55
***Striated Selected (without Factory Coating) available—Face equal to "N" grade CS45-55
†Other thicknesses and sizes available on special order
††Exterior available on special order



RIPPLEWOOD



STRIATED

GP

TEXTURED PLYWOOD | *interior • exterior*

Specifications

General

All paneling shown in the plans and called for in the finish schedule shall be Ripplewood or Striated plywood as manufactured by Georgia-Pacific Corporation, Portland, Oregon. Texture pattern and woods shall be as selected by the architect and this contractor shall furnish samples of each type required for architect's approval. Paneling shall be delivered to the job site in the manufacturer's original cartons.

Material

G-P RIPPLEWOOD® shall be brushed Douglas Fir plywood.

Panels—All panels shall be 5/16" in thickness before brushing, and 4' in width and 8' in length. (Standard Ripplewood panels have square edges but Ripplewood panels may be specified with eased edges and random V-grooves spaced 6"-4"-6", 8"-8", 6"-10" so that a groove falls on 16" centers to coincide with stud spacing.)

Squares—shall be 11⅞" x 11⅞" or 15⅞" x 15⅞".

G-P STRIATED shall be selected Douglas Fir plywood manufactured with deep, clean-cut striations.

Panels—All interior fir panels shall be 5/16" in thickness before striating and 4' in width by _____ in length. (Architect: please indicate whether 8' or 10' length is desired.) (Fir striated is also available in *exterior* grade in either 5/16" or ⅜" thickness.)

Squares—Fir Striated squares shall be 11⅞" x 11⅞ (or 15⅞" x 15⅞") x 5/16" thick.

MANUFACTURE — Ripplewood shall be manufactured from selected old growth Douglas Fir veneers by a special brushing process to remove a portion of the soft grain exposing the natural growth pattern of the hard grain. Particular attention shall be given to attaining a smooth, snag-free surface.

G-P Striated shall be manufactured only from selected Douglas Fir, a special planing process producing clean-cut face striations and back grooves. The planing operation shall remove an equal volume of wood from both sides, producing a flat stable panel with minimum surface tension and with no bellying or ballooning when installed.

Installation

Work included

G-P Ripplewood and G-P Striated shall be furnished in the sizes specified and installation shall be included.

Work by others

Preparation of masonry walls, erecting studs, backing materials, waterproofing, insulation, etc., shall come under the jurisdiction of other trades or subcontractors.

Nail-on installation

Whether application is direct to studs or over an underlayment or old wall, panel edges should join over a stud. For application direct to studs, use 4-penny (1½") finish nails spaced 8" along panel edges and 12" elsewhere. No filling is necessary since the nail is concealed in the textured pattern of both Ripplewood and Striated. Nail heads should be set 1/32" deep. For application over underlayment or old wall use 6-penny (2") finish nails spaced 4" along panel edges and 6" elsewhere. Set as above.

Adhesive installation

Contact adhesives may be used in place of nails. Be sure to cut and fit each panel exactly before adhesive is applied. Once applied it is impossible to make adjustments. This method is not recommended for use over plaster walls in poor condition. Position first panel in corner so initial contact will be at corner edge, then swing into place. Follow same method for subsequent panels. Regardless of type of adhesive used, manufacturer's instructions shall be followed exactly.

Finishing

Natural Wood

For natural finish on Striated or Ripplewood apply two coats of clear wallpaper lacquer or varnish. One or more coats of clear liquid or paste wax, buffed when dry is ideal for Ripplewood.

One-coat paint

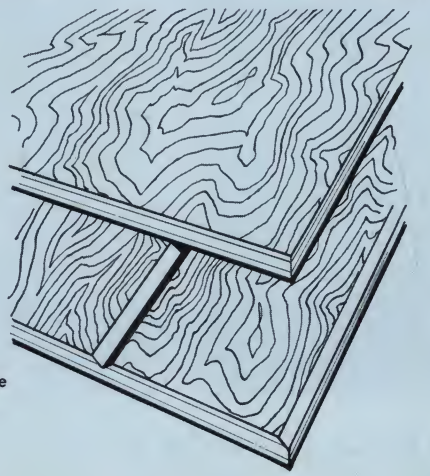
When a solid color is desired as a finish for Striated or Ripplewood apply one coat gloss, semi-gloss or flat, in the desired color. Allow to dry overnight. A second coat may be applied if necessary to gain good hiding.

Two-tone paint

G-P Ripplewood or Striated lends itself to the use of two-tone paint combinations for unusual decorative effects. Apply one coat in the desired base color. Allow to dry overnight or longer. Thin the desired second color about 20% with turpentine. Brush over sections about 2 x 8 feet and wipe off with clean rags or cotton waste. The amount of the secondary color wiped off will determine the intensity of the base color. Allow to dry 6-8 hours. The final effect is the base color with traces of the secondary remaining in the grain.

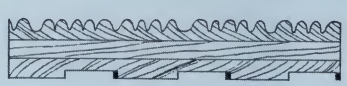
RIPPLEWOOD

Top — Standard Ripplewood with square edge



Bottom — V-groove Ripplewood with V-joint butt edge

STRIATED

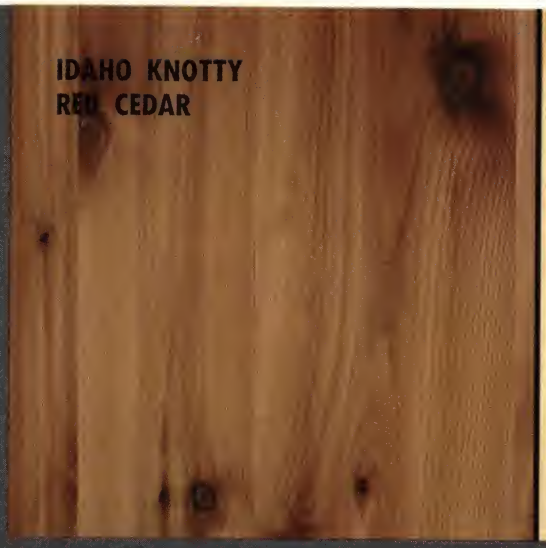


End view showing striations and back grooves. Edges are square.

FACTORY FINISHED MOLDINGS

for use with textured plywood paneling
— See page A11.

softwood plywood . . . with western softwood core



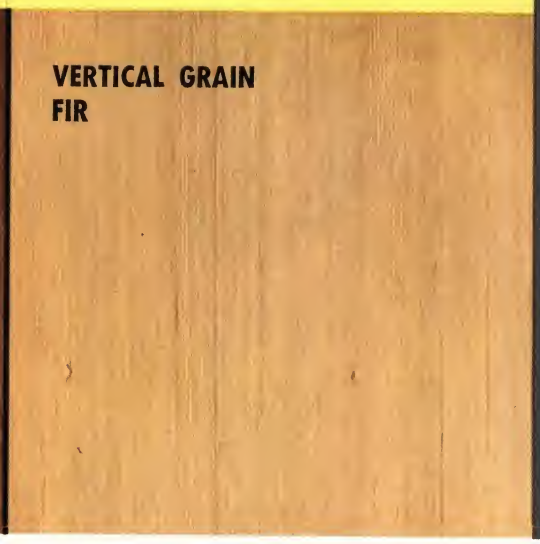


species and face, characteristics	grade information†					** Adhesive bond	stock sizes‡			no. plies	approx. wt. lb. per M feet	retail price per sq. ft.	
	panel	face	back	inner ply*			width	length	thickness			1/4″ A-3	3/4″ A-A
				next to face	cross bands								
Fir—Vertical Grain	A-A or A-2 or A-3	A	A or 2 or 3	B	B	Hot Press Interior	48″	96″	1/4″ 3/8″ 1/2″ 3/4″	3 5 5 7	790 1125 1525 2225	.40	.77
Redwood—Vertical Grain	A-A A-2 A-3	A	A or 2 or 3	B	B	Exterior	48″	96″	1/4″ 3/4″	3 7	790 2225	.43	.90
	(Note Redwood manufactured with Exterior glue line)												
Knotty Pine—Idaho White Knotty Cedar—Idaho Red	A-A or A-2 or A-3	A	A or 2 or 3	B	B	Hot Press Interior	48″	96″	1/4″ 3/4″	3 7	830 2335	.40 .40	.84 .84
	(A-A available in 3/4″ only)												

*Softwood cores comply with U.S. Commercial Standards CS45-55 for Douglas Fir and CS122-56 for other western softwoods.
Fir and CS122-56 for other western softwoods. Other core construction available.
†Grades:
"A" grade conforms to "Good" grade "1" as covered in CS35-56.
(No spike knots or open defects in Knotty Pine and Cedar—selected for pleasing appearance.)
(Vertical Grain Fir and Redwood selected from old growth with tight ring pattern.)
"2" grade conforms to "Sound" grade "2" as covered in CS35-56.
"3" grade includes a range from "Utility" grade "3" to "Backing" grade "4" as covered in CS35-56 at factory option.
"B" grade per CS45-55.

Face Grade Finishes:
Grade A (custom), and 1 (good grade) for smooth, natural varnish, shellac or lacquer finish.
Grade 2 (sound) for smooth paint surface.
Grade 3 (utility) for semi-smooth non-uniform paint surface.
‡Other grades, widths, lengths and thicknesses available on quotation.
**Exterior glue bond upon request.
†Specifying—See page 13A.







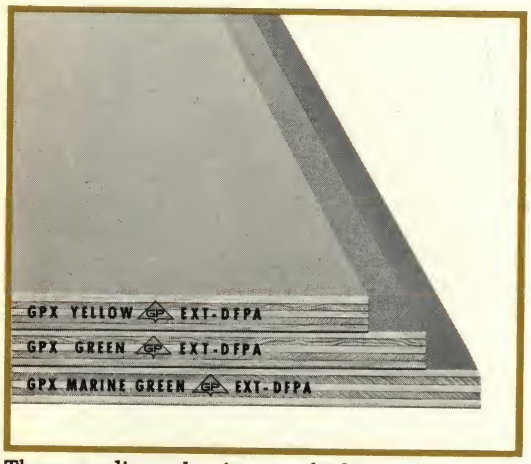
GP

GEORGIA-PACIFIC



	page
OVERLAY SURFACED FIR PLYWOOD	
Medium Density	
GPX Yellow	
GPX Green	B2–B3
GPX Marine Green	
High density	
GPX High Density (All Purpose)	B4–B5
DOUGLAS FIR PLYWOOD	
Exterior, Interior, Special Grades	B6–B8

GPX® medium density overlaid fir plywood



Three medium density overlaid panels are available—GPX Yellow, GPX Green, and GPX Marine Green. All are premium quality panels. GPX Yellow offers a selection of core grades to meet the requirements of any job. GPX Green offers high grade edge jointed core to meet the most rigid specifications. GPX Marine Green is a special panel engineered for boat construction.

Combines advantages of plywood

STRUCTURAL STRENGTH — pound for pound stronger than steel due to the cross-ply lamination.

ECONOMY—large size sheets are economical to buy and economical to handle—they go up fast.

DIMENSIONAL STABILITY—stability is built in—cross-ply lamination—hot press construction—keeps panels stable.

EASE OF HANDLING—panels are easy to handle in the warehouse and on the job.

VERSATILITY—plywood is one of the most versatile building materials. Fits any size and any kind of job.

with these of plastics

SMOOTH, HARD SURFACE—an ideal paint surface. So smooth that sanding is never necessary. The hard surface requires less paint since no seal coat is needed.

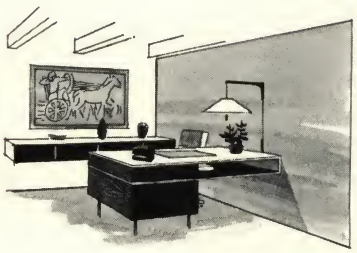
CHECK-FREE, CRACK-FREE SURFACE—phenolic resin combined with cellulose fibers under heat and pressure form an intermolecular bond giving the surface a weatherproof armor.

REDUCES GRAIN RAISE—the hard surface barrier prevents grain raise except in the most severe conditions.

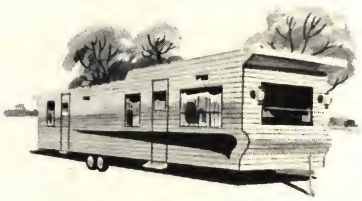
SUPERIOR PAINT BASE—can be covered with one coat. No priming or sanding needed. Second coat produces a deluxe surface—smooth as glass. Paint lasts two to three times longer.

FLEXIBLE AND WORKABLE—bends to same short radius as plywood. Easy to saw, machine, drill, patch, nail, rivet, glue or edge sand. Sharp, clean edges.

A few uses



Interior walls, partitions, paneling, sliding doors



Mobile home walls, partitions, fittings, cabinets

Store counters, fixtures, displays, exterior siding, walls, cooler and freezer linings, industrial uses. Also farm barn linings, milking stalls, divider walls. Interior or exterior signs (with or without cutouts).

GPX YELLOW



Commercial siding for offices, factories, warehouses



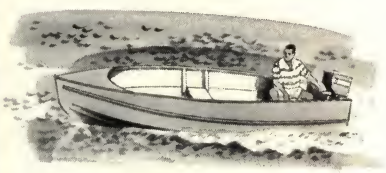
Interior cabinets, built-ins, wall paneling

Exterior siding, walls, gable ends, sliding doors, children's furniture, toys, interior display rooms, industrial uses, highway signs, interior or exterior counter displays and signs.

GPX GREEN



Family-fun on small and large cruisers



Small boats for all purposes

GPX Marine Green is the finest marine grade overlaid panel available and is specially engineered for use in the construction of boats of all sizes.

GPX MARINE GREEN

GP

OVERLAY SURFACED FIR PLYWOOD — *medium density*

Description

GPX is a high grade Douglas Fir Plywood core (Marine has Lauan under overlay) and a surface sheet (one or both sides) composed of uncured wood fibers and phenolic resin. The entire sandwich is bonded at one time under heat and pressure causing a molecular action which fuses resin, fibers and plywood core into a single finished product. GPX is manufactured per CS 45-55.

Plywood construction

	plastic overlay	face grade (under overlay)	back grade (under overlay)	inner ply grade
GPX** Yellow	on one or both sides	B fir	B fir	C fir (unless specified B)
GPX* Green		B fir	B fir	B fir (edge jointed)
GPX Marine Green		Rotary Lauan (sound-patch free	†	B fir (edge jointed)

* If overlay one side only, "B" back may be rough or sanded—as specified.
** If overlay one side only, back may be "B" or "C", rough or sanded—as specified.
† If overlay on one side only, back may be "B" grade fir or Solid Rotary or Ribbon Lauan—as specified.
† If overlay on two sides, back is sound, patch-free Rotary Lauan.

Overlay surface

The surfacing consists of a single sheet of raw resin-impregnated cellulose fiber containing approximately 21 to 22% resin by weight. To this sheet which weighs approximately 68# per thousand square feet is applied a dry phenolic glue line. Surface is yellow or green as indicated above.

Sizes

width*	length**	thickness***	no. plys	wt. lb. per in sq. ft. overlay one side	wt. lb. per in sq. ft. overlay two sides
30″ 48″ 60″	60″, 72″, 84″, 96″, 108″, 120″	¼″ ▫	3	930	1000
		5/16″	3	1030	1100
		3/8″	3	1180	1250
		½″	5†	1580	1650
		5/8″	5	1880	1950
		¾″	7†	2280	2350

* 36″ width available on special order. ▫ ¼″ available in GPX Marine Green only.
** Long lengths with scarf joints on special order † Available in Marine Green only.
*** Panels thicker than ¾″ on special order.

Physical properties

ABRASION RESISTANCE AND SURFACE HARDNESS—GPX Medium Density is not intended for use where conditions of extreme abrasion exist, but is specifically engineered to offer a superior paint surface. The abrasion resistance of the paint film itself is of primary importance. The surface on Medium Density is very hard when compared to unprotected wood. In surface hardness tests it is 20-25% more scratch resistant than hardboard, which in itself is a high-performance product.

WATER ABSORPTION—Tests in accordance with USAF Specification 15015-A, January 14, 1949 indicate that GPX Medium Density absorbs water at about one half the rate of exterior Fir Plywood.

WEATHERING—Tests prove that paint lasts longer on GPX. Hairline cracks are eliminated and grain raise is greatly reduced.

WATER VAPOR TRANSMISSION—Results of this test are important in some cases of insulated construction. The water vapor transmission rate of GPX Medium Density is approximately the same as exterior Fir Plywood having the same number of glue lines. Three plys of wood and overlays both sides and a five ply exterior Fir Plywood panel would have the same rate.

MINIMUM BENDING RADIUS—Bends to the same short radius as regular exterior grade Fir Plywood.

STRENGTH PROPERTIES—GPX Medium Density has essentially the same strength properties as plain exterior Fir Plywood of corresponding thickness and construction.

SMOOTHNESS—The hard, smooth surface of GPX Medium Density resists grain raise and prevents checking of the underlying wood veneers thereby retaining its smooth unbroken surface for the life of the panel.

Working

SAWING, MACHINING AND DRILLING—High speed saws (small teeth, little set), stickers, routers and drills are recommended to insure clean cut edges.

GLUING AND NAILING—For hot gluing use phenolic, melamine or resorcinol adhesives. For cold gluing use resorcinol or casein adhesives. Follow manufacturers instructions.

For nailing use finishing nails no nearer than ¼″ from edge of panel. Set and fill with Famowood or Plasowood or equal.

SANDING AND PATCHING—Any type of sander can be used. Patch with Famowood or Plasowood or equal.

EDGE SEALING AND CAULKING JOINTS—Use heavily pigmented sealer such as Famowood or mixture of spar varnish with 20% added aluminum paste. A non-drying caulking compound is recommended. Allow for expansion of panel joints. Expansion in interior walls approximately 1/32″ in 12 feet.

FINISHING—GPX Yellow is designed for painting. All paints adhere to its clean dry surface, greatly extending the life of properly applied paint films even under severe weather conditions. Follow normal painting practice. Sand between coats.

GPX Green—Specifically engineered for interior or exterior painting. Its superior surface "tooth" permits perfect finishing with just one coat of paint and primer. As with all plywood, however, edge sealing is recommended for exterior applications.

GPX Marine Green—Combines the superior qualities of GPX Green (above) with its own exclusive advantages. The Lauan face (and back—as specified) guarantee an absolutely smooth, flat panel. The availability of an overlay one side and either Rotary or Ribbon Lauan on the other make it ideal for both the natural interior finish as well as the exterior finish.

Specification notes

100% exterior glue line.

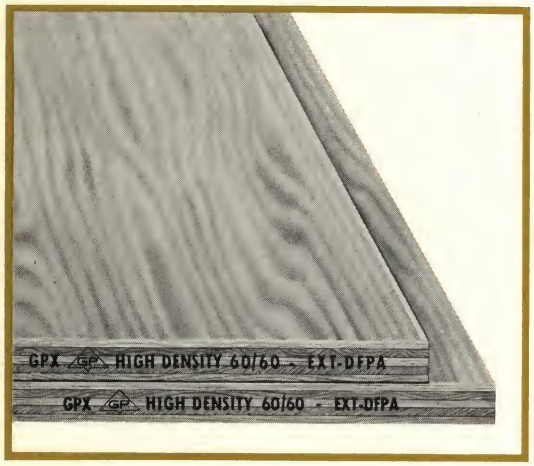
GRADE—GPX Yellow Veneers under overlay shall be "B" solid Grade or better Douglas Fir. Cores and crossbanding shall be "C" veneers. (Where required, GPX yellow can be specified with "B" Grade solid core.)

GPX Green All veneer, faces and core members shall be "B" (solid) Grade or better Douglas Fir. All core members shall be edge jointed. Panels shall be manufactured in standard one-step hot press method.

GPX Marine Green—Veneers under overlay, either face or back, shall be patch-free Sound Rotary Lauan. Cores and crossbanding shall be "B" (solid) Grade or better Douglas Fir. All core members shall be edge jointed. Backs shall be "B" Grade Douglas Fir or Solid Rotary or Ribbon Lauan as specified, Panels shall be manufactured in standard one step hot press method.

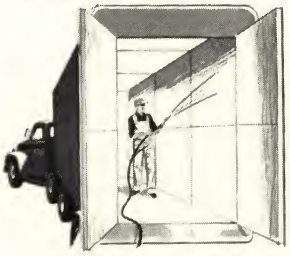
OVERLAY SURFACE shall be cellulose fibre mixed with phenolic resin, formed into sheets, with integral phenolic glue line.

GPX® high density overlaid fir plywood

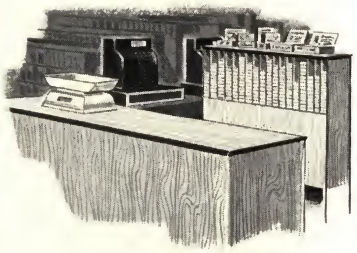


GPX High Density Overlay Surfaced Fir Plywood is an all purpose panel. Specifically engineered to be the finest material for constructing concrete forms and to serve for a complete array of general uses.

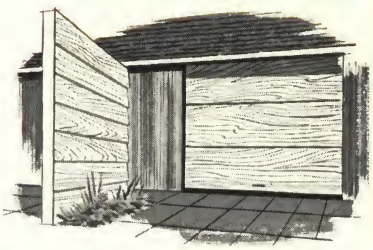
A few uses



Truck van and railroad car linings



Commercial shelving and sales fixtures



Louvered screens and overhead garage doors



Assembly line tables and industrial counters

other uses

House siding, interior walls, walk-in freezers, bins, trays, furniture and all uses requiring high density.

FOR GENERAL USE

Advantages

for general use

SEMI-TRANSPARENT OVERLAY allows natural grain to show through for uses requiring decorative value as well as high-performance.

ARMOR-HARD SURFACE offers maximum resistance to abrasion and scratching. Up to 10 times the resistance of unprotected plywood.

WATER RESISTANCE of GPX High Density is up to 20 times that of unprotected exterior plywood.

CHEMICAL RESISTANCE of GPX High Density extends to most common chemicals and allows a broad range of uses not possible with unprotected plywood.

HIGH DENSITY OVERLAY assures protection from extreme conditions such as freezing, steaming, boiling and baking.

for use as concrete form

SMOOTH SURFACE on concrete, less finishing cost to the contractor.

DRYING TIME for forms between uses is eliminated.

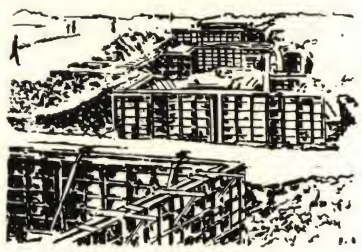
FEWER FORMS are required because GPX High Density lasts longer. Users get 50 or more pourings per side depending upon physical care and treatment of the form.

EXTRA-HARD SURFACE resists damage and assures long usage of the forms with consistent smooth concrete surfaces.

LITTLE OILING is required. GPX High Density won't cling—saves time and expense of frequent oiling.



Assembling GPX concrete forms



Forms in place and concrete poured



Stripping forms—no sticking



Results—smooth concrete structure

The surface on GPX High Density is especially cured to resist water absorption and abrasion and to provide an extra smooth finish for concrete. Long wear and easy stripping are important qualities obtained from GPX High Density.

FOR CONCRETE FORMS

GP

OVERLAY SURFACED FIR PLYWOOD | *high density*

Description

GPX High Density has a high grade Douglas Fir Plywood core overlaid with a high resin surface sheet (two sides for concrete forms and one or two sides for general use). Fir core veneers and surface sheet or sheets are bonded together with water-proof phenolic resin glue lines under extreme heat and pressure in one operation. During the process, the surface flows and sets to become a part of the plywood itself. GPX is manufactured per CS45-55.

Plywood construction

	plastic* overlay	face	back	inner plys
		under overlay		
GPX** high density	one or two sides	A or B specify	A or B specify	B

* Amber color—Black or Olive Drab on special quotation. Plastic overlay starts at 60 lbs. one or two sides and may be increased in multiples of 30 lbs. i.e. 90/90 lbs., 120/120 lbs. etc. Plastic one side panels are recommended for specific uses only—preferably where fastened in place.
** All GPX High Density is edge sealed.

Overlay surface

Amber-clear plastic overlay consists of sheets of cellulose fibre, impregnated with thermosetting phenol-formaldehyde resin (48-52% by weight). This overlay is fused to the plywood faces under heat and pressure in standard one-step hot-press method.

Colors

Color is a natural amber shade with the grain of the wood showing through the overlay. Black and olive drab also available on special order.

Sizes

width*	length**	thickness***	no. plys	wt. lbs. per m sq. ft basis 60 lb. overlay: overlay one side	overlay two sides
30″	60″, 72″, 84″,	5/16″	3	1010	1070
48″	96″, 108″,	3/8″	3	1185	1245
60″	120″	1/2″	5	1585	1645
		5/8″	5	1885	1945
		3/4″	5	2285	2345

* 36″ width available on special order.
** Long lengths with scarf joints on special order.
*** Panels thicker than 3/4″ on special order.

Physical properties

ABRASION RESISTANCE AND SURFACE HARDNESS—GPX high-density overlaid plywood is engineered for uses under conditions of heavy abrasion. Extensive tests prove GPX to be approximately 30 times more resistant to abrasion than ordinary plywood. Scratch tests indicate from 20-75% more resistance than ordinary hardboard.

WATER ABSORPTION—Tests were conducted in accordance with USAF Specification 15015A dated January 14, 1949. Results indicate GPX to be 20-25 times more resistant to water absorption than ordinary plywood.

CHEMICAL RESISTANCE—The plastic surface of GPX has excellent chemical resistance to most common household and industrial chemicals. Hydrocarbons (gasoline, kerosene, etc.), salt and soap solutions, hydrochloric and sulphuric solutions, organic solvents (alcohol, acetone, etc.) leave the surface unaffected. Caustic soda solution, ammonium hydroxide and full strength bleach discolor the finish. Conduct individual test before using GPX near unusual chemical solutions.

PAINT LASTS LONGER on GPX than on any other type of wood base product, as proven by tests.

MOLD, FUNGUS, TERMITES, BORERS, ETC.—The surface has remarkable resistance to infestation. Edges of panels must be sealed to prevent pests from attacking the raw wood.

LIGHT STABILITY—Long exposure to sunlight tends to darken the light amber surface the same way a varnished surface darkens slightly with age.

Working

SAWING, MACHINING AND DRILLING—High speed saws (small teeth, little set), stickers, routers and drills are recommended to insure clean cut edges.

GLUING AND NAILING—For hot gluing, use phenolic, melamine or resorcinol adhesives. For cold gluing, use resorcinol or casein adhesives. For maximum bond strength, sand GPX surface lightly.

Manufacturer's instructions should be carefully followed. For nailing, use finishing nails no nearer than 1/4″ from edge of panel. Set and fill with Famowood or Plasowood or equal.

SANDING AND PATCHING—Any type of sander can be used. Patch with Famowood or Plasowood or equal.

EDGE SEALING AND CAULKING JOINTS—Use heavily pigmented sealer such as Famowood or mixture of spar varnish with 20% added aluminum paste.
A non-drying caulking compound is recommended. Allow for expansion of panel joints. Expansion in interior walls approximately 1/32″ in 12 feet.

FINISHING—Excellent weathering properties eliminate the necessity of painting GPX High Density. If a change in color is desired, paint can be used. Use paints of the air drying type. Paints having a high percentage of linseed oil are not recommended. Properly applied paint will have a much longer life than the same paint applied to ordinary plywood.

Tips on handling GPX for concrete forms

GPX High Density requires no advance preparation however proper care will result in maximum number of re-uses.
Use wooden wedges in stripping.
Do not drop panels on corners or edges.
Clean panels with broom immediately after stripping.
Stack flat on level ground.
Keep edges sealed.
Occasional oiling will extend the useable life of the panel.

Specifications

GPX HIGH DENSITY for general use—High density overlay surfaced plywood shall be GPX High Density Overlay Surfaced fir plywood as manufactured by the Georgia-Pacific Corporation, Portland, Oregon. (Specify overlay one or both sides, overlay weight and color, face and back grades under overlay. See table.)

GPX HIGH DENSITY for use as concrete form—Panels used for forming concrete shall be GPX High Density Overlay Surfaced fir plywood as manufactured by the Georgia-Pacific Corporation, Portland, Oregon. (Specify overlay weight. See table.)

Georgia-Pacific Douglas fir plywoods



Two basic types of Douglas Fir Plywood are produced by Georgia-Pacific plywood mills. Exterior plywood is manufactured with 100% waterproof glue for marine and outdoor use, and Interior plywood is manufactured with moisture-resistant adhesives for use where waterproofing is not a necessity. A full range of grades, sizes and thicknesses in both types are available.

Advantages

STRUCTURAL STRENGTH—The cross-ply lamination construction gives strength in two directions.

DIMENSIONAL STABILITY—The cross-lamination balances the natural stresses in wood grain.

ECONOMICAL TO BUY AND TO USE—Large size panels go up fast—cuts labor costs.

QUALITY GUARANTEED—G-P Douglas Fir Plywood equals or surpasses the quality controls of the plywood industry—each piece of Exterior and Interior Douglas Fir Plywood is branded with the G-P trademark plus the stamp of approval of the DFPA—your guarantee of quality.

Veneer grades

"A"—Highest standard appearance quality veneer. Smooth and paintable. If made of more than one piece, veneer is to be well joined and reasonably matched. Neatly made repairs, shims, streaks and sapwood permitted. No open defects or knots.

"B"—Similar to "A" veneer except that tight knots, circular plugs, limited sander skips and splits not wider than 1/32" permitted.

"C" (REPAIRED) — For underlayment. Tight knots, open defects not to exceed 1/4" x 1/2", splits not over 1/8" wide, limited sander skips and torn grain allowed.

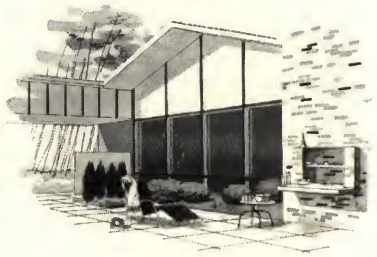
"C"—Standard for use as inner plys and backs (some grades) in Exterior plywood. Permits tight knots to 1 1/2", knotholes to 1", splits 3/16" or less that taper to a point, plugs and other repairs.

"D"—Veneer used only for Interior-type plywood. Allows pitch pockets, splits, knotholes to 2 1/2" and other open defects, plugs and other repairs.

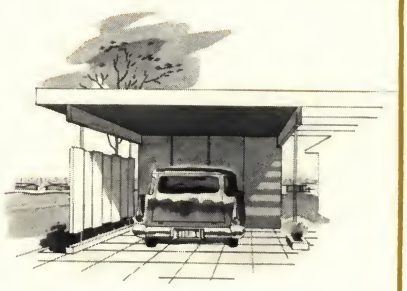
A few exterior uses



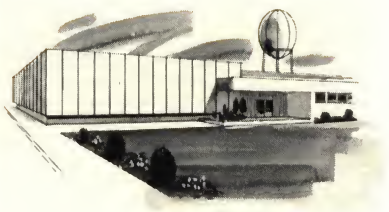
Farm buildings



Soffits and gable ends



Carport, fences, etc.



Industrial buildings

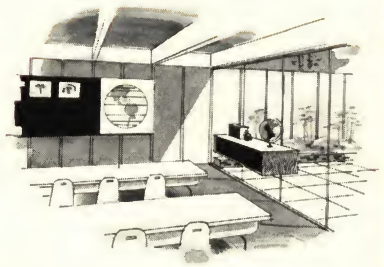
A few interior uses



Interior wall paneling



Roof and wall sheathing



School interiors



Built-ins, cabinets and closets

DFPA grade	description and use	veneer grade* face	back	inner plys	stock sizes** width	length	thickness
EXTERIOR TYPES							
A-A	For permanent exterior uses where appearance of both sides is important, boats, signs, fencing, outdoor furniture, carports, etc.	A	A	C	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
A-B	Permanent outdoor use where appearance of one side is of primary importance with solid opposite side.	A	B	C	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
A-C	"One side" grade for such exterior uses as siding, soffits, fences, outdoor signs, displays, cutouts.	A	C	C	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
B-C	Utility outside building panel, farm buildings, storage, etc.	B	C	C	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
C (repaired)-C	Underlayment grade, where extreme moisture conditions are present, for tile, linoleum, etc.	C† (repaired)	C	C	48″	96″	5/16″, ⅜″, ½″, ⅝″, ¾″
B-B	Exterior maximum re-use concrete form, edges sealed with red sealer. Mill oiled unless otherwise specified. Available in ⅝″ and ¾″ thicknesses.	B	B	C	48″	96″	⅝″, ¾″
C-C	Unsanded structural panel with waterproof glue for exterior uses including exposed sheathing, construction open to weather and extreme dampness.	C	C	C	48″	96″	5/16″, ⅜″, ½″, ⅝″, ¾″
INTERIOR TYPES							
A-A	Indoor use where appearance of both sides is important. Built-ins, furniture, cabinet doors, partitions.	A	A	D	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
A-B	Interior use requiring one surface of highest appearance with solid opposite side. Uses similar to A-A.	A	B	D	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
A-D	"One side" grade for many interior uses, paneling, counters, built-ins, displays, cutouts, backing and underlayment.	A	D	D	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
B-D	Utility interior panel for uses requiring one solid surface. Backing, cabinet sides, concealed partitions.	B	D	D	48″	96″	¼″, ⅜″, ½″, ⅝″, ¾″
C (repaired)-D	Underlayment grade for tile, linoleum, carpeting.	C† (repaired)	D	D‡	48″	96″	5/16″, ⅜″, ½″, ⅝″, ¾″
B-B ***	Reusable concrete form plywood, edges sealed with green sealer. Mill oiled unless otherwise specified. Available in ⅝″ and ¾″ thickness.	B	B	C	48″	96″	⅝″, ¾″
C-D■	Unsanded construction grade, for use as wall and roof sheathing, sub-flooring, barriers, temporary structures or shelters, packing cases, etc.	C	D	D	48″	96″	5/16″, ⅜″, ½″, ⅝″, ¾″
C-D (Exterior) (glue)	This grade has regular exterior, waterproof glue. Not normally a substitute for exterior plywood.	C	D	D	48″	96″	5/16″, ⅜″, ½″, ⅝″, ¾″
2-4-1	Cost-saving combination sub-flooring and underlayment base for tile, linoleum, wood strip or block flooring, carpeting. Used on 4-foot span grid system. Available in 1⅛″ thickness only.	C†	D	D	48″	96″	1⅛″

* Number plys—3 (¼″, 5/16″, ⅜″ plywood). 5 (½″, ⅝″, ¾″ plywood).
** Other sizes available: Widths to 60″, lengths to 144″. Lengths over 144″ available with scarf joint.
*** B-B interior other than concrete form is manufactured with D inner plys.
† See veneer grade text at left.
‡ Veneer under face, C or better.
■ For complete information on G-P Premium Sheathing, see siding and sheathing catalog.

Specifying plywood

Take the same care in specifying plywood that you use in ordering any other material: For Douglas Fir Plywood stipulate number of pieces, number of plys, width, length, moisture resistance (glueline type), appearance grade, finished thickness and whether sanded or unsanded, or name of special product. For hardwood and other species, include face specie and core specie.

About 75% of all plywood is produced in 4′ x 8′ panels. These dimensions are multiples of practically any working module in construction industry; so estimating the quantity required is simplified. Exact panel sizes minimize waste. Plywood is never "green", thus it is not necessary to discount for shrinkage.

Industry type and grade identification provide valuable guides to help prevent misuse. Applicable standards are covered in detail in U.S. Commercial Standards as follows—

Douglas Fir Plywood—CS 45-55
Other Western Softwood Plywoods—CS 122-56
Hardwood Plywoods—CS 35-56

special Douglas fir plywood

TEXTURE 1-11—Used for vertical siding, soffits, patio enclosures, fences, displays, etc. Further information is given in Siding, Sheathing catalog. See File Index.

pattern	groove①	width net	width overall	length	thickness	wt. lb. per M sq. ft.	no. plys	Douglas fir grades: panel	face	inner plys	back	adhesive bond	edges
16/2	2" O.C.	16"	16⅜"	8', 9' or 10'	⅝"	1825	5	special DFPA	natural C	C	C	exterior	shiplapped
		48"	48⅜"										
32/4	4" O.C.	32"	32⅜"										
		48"	48⅜"										

① Grooves also available 8" O.C. or alternating grooving or special patterns if sufficient quantity required.

RIPPLEWOOD®—Used for decorative paneling, ceilings, built-ins, displays, etc. Further information is given in Decorative Plywood catalog. See File Index.

	width	length	thickness	no. plys	pieces per carton	sq. ft. per carton	wt. lb. per M sq. ft.	retail price per sq. ft.	face* grade	inner** ply grades	** back grade	adhesive bond
panels—standard	4'	8'	5/16"	3	10	320	950	.26	selected	D	D	interior
squares—standard	11⅞"	11⅞"	5/16"	3	50	50	950	.29				
	15⅞"	15⅞"	5/16"	3	40	71	950	.29				
panels—V-groove	4'	8'	5/16"	3	10	320	950	.28				

* Manufactured from select old growth Douglas Fir. ** Per CS 45-55

STRIATED* PLYWOOD—FACTORY-COATED**—For residential, commercial and display uses where real wood, low cost paneling is desired. See Decorative Plywood catalog.
* U.S. Patent

	width	length	thickness	no. plys	pieces per carton	sq. ft. per carton	wt. lb. per M sq. ft.	retail price per sq. ft.	*** face grade	inner ply grades	back grade	adhesive bond	edges
panels (interior)	4'	8'	5/16"	3	not packaged		950	$.235	A	D	D	Interior	Square
	4'	10'	5/16"	3			950	.27	A	D	D	Interior	
panels (exterior)	4'	† 8'	5/16"	3			950	.25	A	C	C	Exterior	
	4'	† 8'	3/8"	3			1300	.30	A	C	C	Exterior	
squares (interior)	11⅞"	11⅞"	5/16"	3	50	50	950	.27	A	D	D	Interior	
	15⅞"	15⅞"	5/16"	3	40	71	950	.27	A	D	D	Interior	

** Striated Natural (without FactoryCoating) available—Face equal to "N" grade CS 45-55
*** Manufactured from select old growth Douglas Fir per CS 45-55 † 10' lengths available

HARDBOARD OVERLAY PLYWOOD—Used for underlayment, counter-tops and counter-fronts, cabinet doors, wardrobes, shelving.

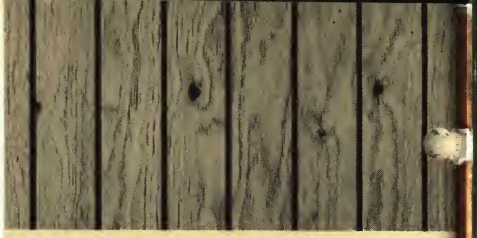
	width	length	thickness	wt. lb. per M sq. ft. one side	wt. lb. per M sq. ft. two sides	no. plys	G-P hardboard overlay	adhesive bond	edges
panels	48"	96"	5/16"	1375	——	3	*one side H-D	interior	square
			3/8"	1550	——	3			
	48"	96"	1/2"	1950	2150	5	*one side H-D		
			5/8"	2250	2500	5	or		
			3/4"	2650	2875	5	two sides H-H		

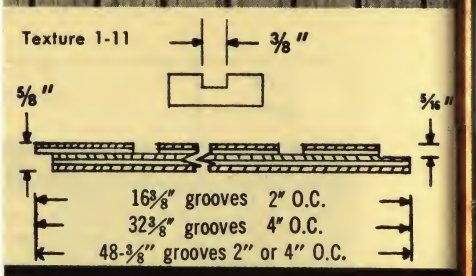
* If hardboard is on one side only, core and back are D grade (or B grade on special order).
If hardboard is on both sides, core and cross-banding are B grade (solid).

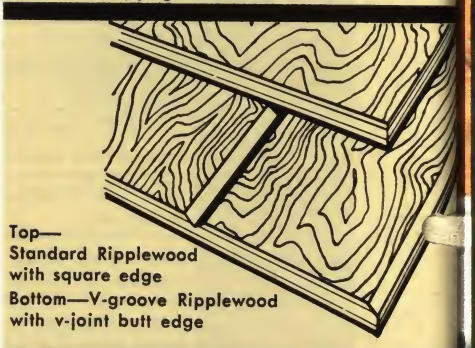
MARINE EXTERIOR PLYWOOD—A premium panel for boat hulls and superstructures.

	width†	length†	thickness	wt. lb. per M sq. ft.	no. plys	panel grade	face grade	back grade	inner grades	adhesive bond	edges
panels	48"	8' to 24'	1/4"	790	3	A-A* or A-B*	A	A or B	B grade solid and edge-jointed	exterior	square
			3/8"	1125	3 or 5						
			1/2"	1525	5						
			5/8"	1825	5						
			3/4"	2225	5 or 7						

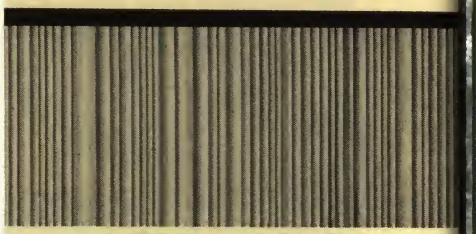
† Widths from 30" to 60" and lengths over 24' available on special order. Lengths over 10' scarfed.
* Per CS 45-55 as modified for Marine exterior plywood.



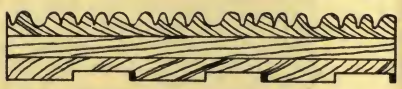




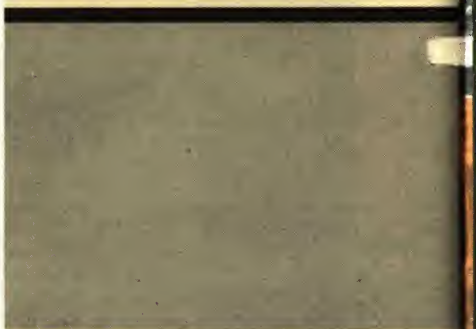
Top—
Standard Ripplewood with square edge
Bottom—V-groove Ripplewood with v-joint butt edge



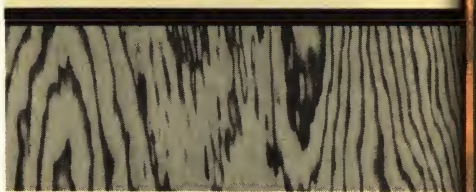
Striated Plywood—Factory-Coated



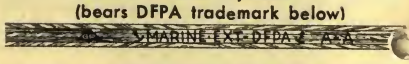
End view showing striations and back grooves



Hardboard Overlay Plywood



Marine Exterior Plywood
(bears DFPA trademark below)



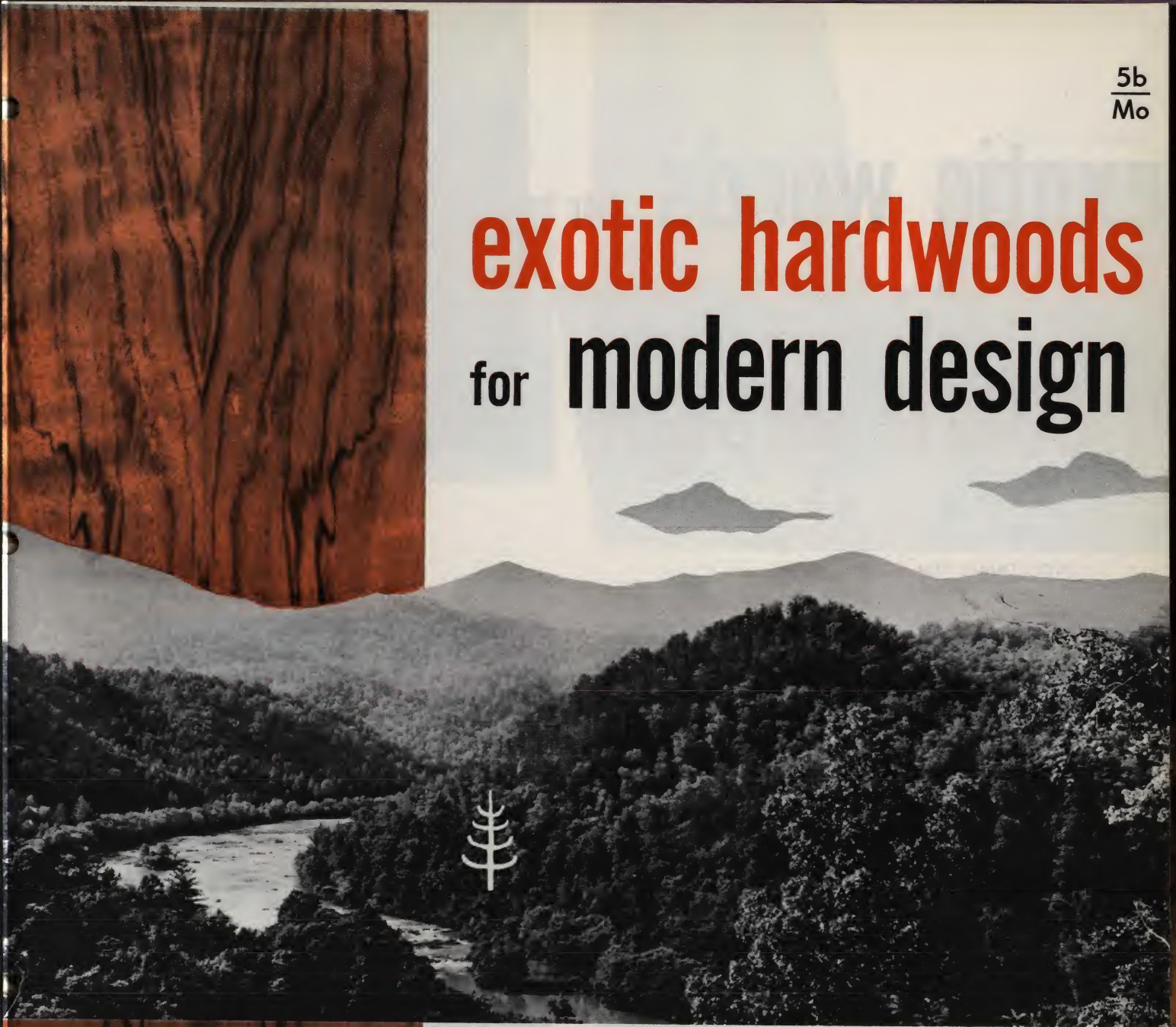
GEORGIA-PACIFIC

EQUITABLE BUILDING • PORTLAND 4, OREGON

for sales offices and warehouses see our wood products reference guide

5b
Mo

exotic hardwoods for modern design



paneling

lumber

plywood

veneers

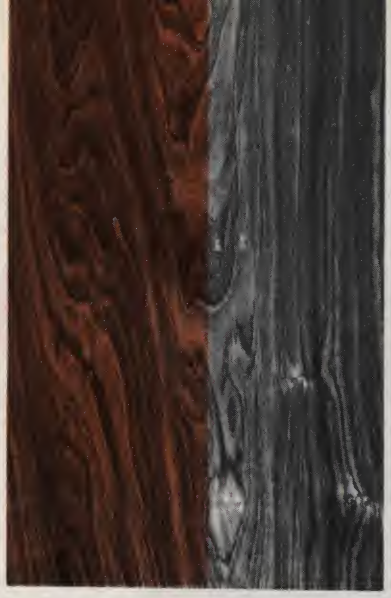
J. H. MONTEATH CO.

2500 A Park Avenue, New York 51, New York

exotic woods for modern design



CARPATHIAN ELM BURL



BRAZILIAN ROSEWOOD



MACASSAR EBONY

To many architects and designers, today seems to be the age of metals and plastics. To an ever increasing number, however, these materials have their place, but wood, in all its many forms and species, offers inspiring and virtually unlimited possibilities for unique and strikingly beautiful effects impossible of attainment with other materials.

Veneering is an art more than 3,500 years old. Down through the years the art has been advanced until today, thanks to modern imports, machinery and technology, the finest of foreign woods are no longer limited to the rich or privileged few. From the corners of the world, rare and beautiful woods are now available to the architect and designer for interior paneling, furniture, special millwork, flooring, fixtures and a wide range of specialized uses.

new design possibilities

Modern architects and designers are discovering again the almost unlimited effects possible with fine hardwoods. Color, texture, grain and figure patterns offer exciting opportunities for the creative imagination. More than 200 species from the more than 25,000 varieties of hardwoods are available in commercial quantities. Even within the same species, figure and grain patterns of two trees are never the same. Using this variation as a basis, the designer has at his disposal the many methods of fabrication since these woods can be carved, molded, shaped or bent, inlaid or overlaid, combined with each other or with other materials. One of the most popular forms of veneers is in plywood form with the grain and figure patterns combined in random, natural effects or matched in a number of ways — book-matched, slip-matched, butt-matched or in a combination of these methods. Some of these are shown in the accompanying illustrations but black-and-white can never do justice to the strikingly rich and beautiful effects possible with these hardwoods.



Paneling and special veneer effects by Juno Woodworking

Interior paneling by Midhattan Woodworking

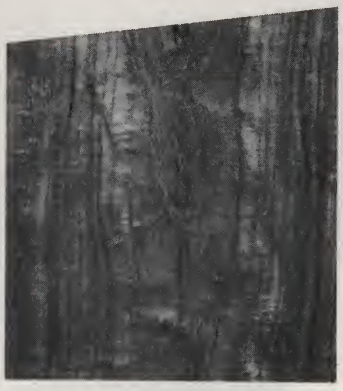


The J. H. Monteath Company has long specialized in the importation of woods from all parts of the world through its world-wide affiliations and places this long experience and years of cooperation with designers at the disposal of the architect interested in achieving unusual effects with exotic hardwoods. The company's facilities and service are outlined on the facing page and some of the hundreds of woods available are listed on back cover.



ENGLISH POLLARD OAK

TEAK





KOA

CHERRY-FIGURED



J. H. MONTEATH CO.

Founded in 1856, the J. H. Monteath Company has imported and exported more varieties of wood than any other company in the world. It brings into this country the greatest number of exotic woods from Asia, Africa, Australia, Japan, Europe, South and Central America and, at the same time, handles all species of domestic woods. It exports millions of feet of domestic woods annually. Hundreds of veneer samples in maximum full lengths are available for study and selection and indicate the supplies maintained at the company's mills at all times. In addition, the architect may see veneered plywood stocks of several species, in various thicknesses and sizes. A visit to the Monteath showroom is an inspiration to the designer .

facilities

In addition to the Home Office and warehouses in New York, the Monteath Company maintains manufacturing and storage facilities at South Amboy, New Jersey. The 44 acre plant consists of 40 warehouses where imported woods are sorted, sawed, dried and finished. Five kilns handle more than 5,000,000 board feet of lumber a year. Other plants are located in Pennsylvania, Virginia, and Indiana, where veneer and plywood are produced from commercial and cabinet-grade to custom-architectural grade.

The company not only supplies plywood and veneers for special installations but lumber of the same woods are readily available for solid paneling and other purposes, such as custom moulding and special mill work.

The Monteath Company has always supplied large quantities of marine woods for shipbuilding, woods and veneers for fine furniture, general construction lumber and heavy timbers for engineering and structural work.

services

The company has a carefully trained staff of wood experts operating from its New York offices as well as representatives throughout the United States and in foreign countries. The services and advice of these specialists are available to architects, designers and manufacturers and the company will welcome calls for consultation. A permanent exhibit of many exotic woods is maintained in the Architect Samples Building, 101 Park Avenue, New York.



The First Presbyterian Church, Stamford, Connecticut
Architect: Harrison & Abramovitz
Pews: Joseph E. Rhodes, Wood: Monteath

samples

The warmth, color, textures and patterns of exotic hardwoods are almost impossible to reproduce on paper. Small veneer samples can show only a limited section of veneer from a single tree, and while it may be typical of the species, it may be misleading because it does not show the complete figure. It is for this reason that Monteath recommends a personal visit to the New York showroom where large samples from all over the world may be examined. However, for those architects unable to make such a visit, the company's specialists and representatives are always glad to provide samples of such species as the designer may select.



a few of the many foreign and domestic woods available from J. H. Monteath Company

WOODS	COUNTRY OF ORIGIN	USES
Applewood	United States	Saw Handles & Furniture
Ash	United States	Chair Frames, Handles & Baseball Bats
Avodire	Africa	Furniture & Interiors
Balsawood	Ecuador	Insulation, Hat Blocks, Model Air Planes
Beech	United States	Furniture, Handles
Beefwood	Brazil	Violin Bows, Inlay & Arrow Footings
Birch	U.S. & Canada	Furniture, Store Fixtures & Doors
Boxwood	Venezuela, Columbia	Wood Engraving Blocks, Rulers, etc.
Bubinga	Africa	Inlays & Interior Woodwork, Handles
Butternut	United States	Furniture & Panels
Camphorwood	Africa	Cupboards & Chests
Carpathian Elm	France	Fine Cabinetry
Cedars	United States	Boat Work
Cherry	United States	Furniture & Interior Woodwork
Chestnut	United States	Paneling
Cocobolo	Nicaragua, Costa Rica	Cutlery Handles & Tool Handles, Hairbrush
Cypress (Red & Yellow)	United States	Boat Work, Tanks
Degame	Cuba	Archery Bow Staves & Fishing Rods
Dogwood	United States	Shuttles, Spinning Chucks
Ebony	Africa, Ceylon	Musical Instruments, Flats & Sharps, Pianos, Paneling
Gonzales Alves	Brazil	Tool Handles
Greenheart	British Guiana	Piling, Wharfs & Fishing Poles
Grenadilla	Africa	Clarinets & Inlay
Harewood (White & Grey)	England	Store Fixtures & Furniture
Hickory	United States	Handles, Skis
Holly (White)	United States	Inlay, Marquetrie, & Rulers
Imbuya	Brazil	Furniture, Cue Butts
Iroko	Africa	Boat Work
Koa	Hawaii	Paneling, Furniture
Lemonwood	Cuba	Archery Bow Staves
Lignum Vitae	Cent. Amer., W. Indies	Stern Tube Bearings, Bushings, Pulley Blks.
Limba	Africa	Store Fixtures, Furniture
Mahogany	Honduras, Africa, Philippines	Furniture, Boat Work & Interiors
Maple	U.S. & Canada	Flooring & Furniture
Oak	United States	Flooring, Furniture, Truck Bodies & Interiors
Osage Orange	United States	Archery Bow Staves
Padouk	Africa, Andaman Is.	Show Cases, Furniture, Interiors
Paldao	Philippines, Indo China	Interiors, Furniture
Pernambuco	Brazil	Violin Bows
Peroba	Brazil	Flooring, Furniture & Boat Work
Persimmon	United States	Shuttle Blocks & Handles & Golf Club Heads
Pine	U.S. & Brazil	Building Construction, Paneling
Poplar	United States	Furniture & Hat Blocks
Prima Vera	Guatamala	Furniture, Showcases & Interiors
Purpleheart	British Guiana	Inlay Work, Store Fixtures & Gun Stocks
Rosewood	Brazil, Honduras, East India, Africa	Tool & Cutlery Handles, Xylophones, Furniture, Panels
Sandalwood	Jamaica	Perfumery
Satinwood	Ceylon	Furniture & Hair Brushes, Inlay
Sitka Spruce	United States	Boat Work, Guitars, Ladders
Snakewood	Dutch Guiana	Inlay, Walking Canes, Umbrella Handles
Teakwood	Thailand, Burma	Boat Work, Decking & Flooring, Furniture & Interiors
Tulipwood	Brazil	Inlay
Walnut	America, Africa, France, England	Furniture & Paneling, Gun Stocks
Yew	United States	Furniture
Zebra	Africa	Panels, Gun Stocks

NOTE: MOST OF THE ABOVE WOODS CAN BE FURNISHED IN EITHER LUMBER, PLYWOOD OR VENEERS.



Established Quality with Proven Economy Since 1856

J. H. MONTEATH CO.

2500 A Park Avenue, New York 51, New York

Telephone — CYpress 2-9333

UNIVERSAL MEMBERS OF: NATIONAL HARDWOOD LUMBER ASSN., FINE HARDWOODS ASSN., MAHOGANY ASSN.

Printed in U.S.A. 9-59



THE PLYWOOD COMPANY
SUMTER, SOUTH CAROLINA

Panelplank

with Plychem Finish

PANELPLANK now makes it possible for the architect and builder to provide their clients with real wood paneling in a variety of species suitable for any room or other area. **Panelplank** is ¼" 3-ply all hardwood panels, hot press bonded with Type II Water Resistant Glue. Panels are shipped in standard 4' x 8' sheets packed 6 to a carton. All Certified American Quality Plywood made in accordance with Type II Bond Commercial Standard CS35-56. Finish passes all tests specified by the Hardwood Plywood Institute.

Features

- Available in a variety of popular species.
- V-grooved on parallel veneer joints to simulate random width lumber paneling.
- Edges half V's to match "V" on faces when installed giving continuous plank effect.
- All panels cut accurately to form tight joints when placed side by side on a wall.
- Factory finished with Plychem Finish — ready to install.
- 48" x 96" size for quick installation at extremely low installation cost.
- Packaged 6 pieces to carton with paper between pieces for protection in shipping and handling.
- Impact resistance, for it will not split.
- Dimensional stability due to crossband construction.
- Cleanliness, because plywood walls are easy to maintain.
- Low conductivity.
- High sound absorption.

Plychem Finish

New Plychem Finish is a polymerized-varnish which will keep **Panelplank** and Oak-Ply Flooring beautiful through the years. This unique finish contains many more solids than ordinary finishes and is applied by roller coat method and then is cured in infra-red ovens. The resulting finish provides remarkable advantages, among them:

- **ABRASION RESISTANCE** — So important to prevent marking or scraping by the back edge of a chair.
- **RESISTANCE TO HOUSEHOLD CHEMICALS** — "Plychem" finish is not permanently marred by application of lipstick, fingernail lacquer enamel, crayons, water, alcohol, acids, alkalies, detergents, hair tonic, smoke, etc. Residue of all these may be removed without leaving a trace.
- **MAR RESISTANCE** — In most instances the "Plychem" finish will show greater scratch resistance than other types of prefinished panels.
- **RESISTANCE TO BURNING** — "Plychem" does not contain nitrocellulose or any other highly inflammable material.

V-GROOVED, PREFINISHED HARDWOOD PLYWOOD PANELING

Typical Uses of Panelplank



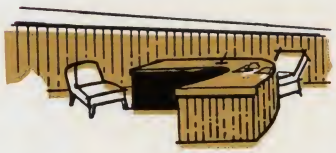
. . . Living Room
Panelplank gives your living room the look of dignity it deserves.



. . . Dining Room and Kitchen
Panelplank blends with any style of furniture in your dining room — gives your kitchen a distinctive appearance . . . at a low cost.



. . . Den and Family Room
Dens and family rooms come alive with the warmth and beauty of plywood paneling. In modern homes more and more wood paneled bedrooms, bathrooms and powder rooms are appearing . . . more proof of the versatility of economical prefinished plywood paneling!



commercial uses too

. . . Office . . . Store
Offices and stores take advantage of a luxury look at a modest cost . . . and enjoy low maintenance expense . . . by using durable **Panelplank.**



10 Species to Choose From . . .

CERTIFIED AMERICAN QUALITY PLYWOOD
- Birch
- Rotary Red Oak
- Silver Oak
- Sliced White Oak
- Walnut
- African Mahogany
- Gum
- Cherry

IMPORTED PLYWOOD
- Sen (White Ash)
- Lauan



Architect's Specifications

Where shown on plans or listed in these specifications wall paneling shall be Panelplank V-Grooved, Prefinished Hardwood Plywood manufactured by The Plywood Company, Sumter, South Carolina with surface finish of Plychem. Species of wood shall be as listed for each area. Paneling shall be installed in accordance with directions of manufacturer.

OAK-PLY FLOOR

with Plychem Finish

Oak-Ply Prefinished Laminated Oak Block Flooring lends any interior a beautiful, warm floor made of genuine hardwood with the new, durable Plychem finish. Smooth, long wearing, and decorative — Oak-Ply block patterns fit perfectly into any decorative scheme.

The rich tone of Red Oak will fit perfectly into any installation, whether a small home or a large building. Economy and easy installation, plus long wear makes Oak-Ply prefinished hardwood floors perfectly suited for any project.

Plychem Finish

New Plychem Finish is a polymerized-varnish which contains more solids than ordinary finishes and is applied by roller coat method and then cured in infrared ovens. The result is a remarkable finish which resists abrasion, scratches and burning and has high resistance to all household chemicals.

OAK-PLY Specifications

Material

A. Red Oak only.
B. Face veneer is carefully selected.

Glue Bond

A. Urea Resin fortified with Melamine.

Thickness

A. ½" 3 ply — .480 plus or minus .010".
B. ½" 4 ply — .480 plus or minus .010".
C. ⅝" 5 ply — .600 plus or minus .010".

Size: 9" x 9" plus or minus .005".

Measurement

Laminated block flooring shall be measured and counted as of the actual surface area.

Oak-Ply Floor Packaging

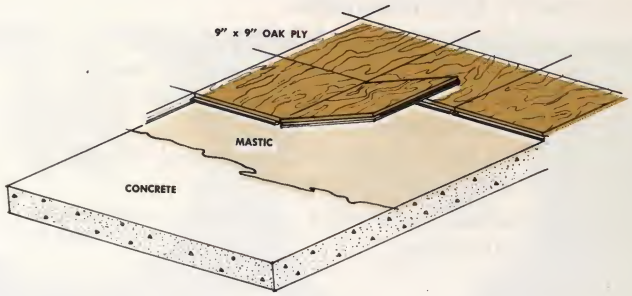
Oak-Ply Floor comes packaged as follows:

½" 3 ply Oak-Ply — 38 pieces to the carton (covers 21.375 sq. ft.)

½" 4 ply Oak-Ply — 38 pieces to the carton (covers 21.375 sq. ft.)

⅝" 5 ply Oak-Ply — 30 pieces to the carton (covers 16.875 sq. ft.)

LAMINATED OAK BLOCK FLOORING



Grades

A. Majestic — practically free of defects except pin knots and burls and selected for uniformity of color.
B. Casual — may contain all the natural variations in color, heavy streaks, small tight knots, checks which will fill on unfinished blocks and which are filled on pre-finished and slight imperfections in working.
C. Utility — may contain open natural defects or machine defects but blocks must be satisfactory for use as a whole in closets or other places where appearance isn't too important or will make one half or more of Casual and better grade when cut to be used for fitting around edges of room.

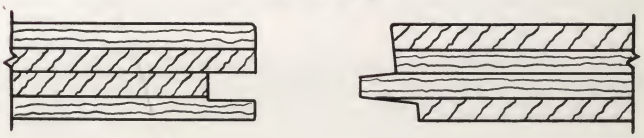
Tongue and Groove

A. Tongues are parallel to each other and grooves are parallel to each other.
B. Location and size of T&G as follows:

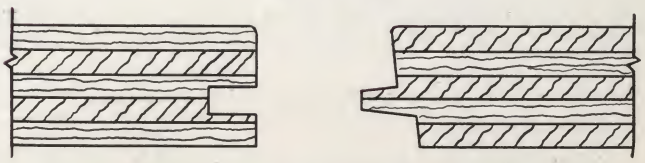
½" 3 Ply



½" 4 Ply



⅝" 5 Ply



OAK-PLY FLOOR

ARCHITECT'S SPECIFICATIONS

Finish floor in areas so designated shall be Oak-Ply Laminated Oak Block Flooring manufactured by The Plywood Company, Sumter, South Carolina, with surface finish of Plychem.

Flooring shall be (specify thickness and number of plies) and of grade (specify).

Installation shall be in strict accordance with manufacturer's instructions.

INSTALLATION

Instructions for Installing Oak-Ply With Manufacturer's Recommended Mastic.

PREPARATION OF SURFACE

Concrete should be sound, level, dry and have a trowel finish with no high spots. Level high spots or ridges with a terrazzo grinder, carborundum stone or hammer and chisel. Fill low areas to general floor level with a good quality concrete patch mix, according to directions on container. Plywood blocks are rigid and will tend to rock on high spots or ridges causing a popping and cracking noise when walked over.

Broom and clean base surface thoroughly, remove all grease, dust, paint, oil or plaster. (No primer required if this is followed.) It is preferable, however, to use primer on base before applying Plywood Block Cement. Priming accomplishes the following: (1) ties down surface dust; (2) cuts slightly into slab and prepares it for adhesive. The floor coverage of primers generally run from 150 to 300 square feet per gallon. If primer is not available it can be made by reducing Plywood Block Cement 3 or 4 parts to one with varsol or white gasoline (not kerosene). Allow sufficient time for primer to dry before applying Plywood Block Cement.

Work one room (not over 150 square feet) at the time.

APPLICATION OF MASTIC

Stir Plywood Block Cement thoroughly before using and keep pail covered when not using.

Use properly corrugated trowel, with notches cut or filed ¼" deep, ¼" wide and ¼" apart, spread puddles approximately 1/16" thickness over entire surface, and just enough cement to completely coat sub-floor, holding trowel at 30° to 45° angle. Gallon covers approximately 40 to 50 square feet depending on condition of slab. Apply blocks with-

LAMINATED OAK BLOCK FLOORING

APPLICATION OF MASTIC (Continued)

in 10 to 20 minutes after cement application, or after film has formed that is not sticky to touch. We suggest that when all blocks have been placed in room, they be rolled with 100# roller.

Cement between cracks or on surface of blocks can be removed after drying by scraping with putty knife or wiping with rag moistened with varsol or white gasoline, care being taken not to stain wood blocks with excess of solvent.

Should cement glaze over or harden before application of blocks, sponge on sparingly varsol or white gasoline until cement becomes tacky to touch, then apply blocks immediately. For best results delete use of solvent, and apply another thin coat of Plywood Block Cement. Cement in pails partly used, which has become stiff to work well, may be reclaimed by addition of small quantities of solvent (varsol or white gasoline) stirring until desired consistency is attained.

WORKING CONDITIONS

Temperature of 70°F. is desirable and in no case should an installation be made with a temperature at the slab lower than 45°F. KEEP ROOMS WELL VENTILATED WHILE USING.

Maximum coordination is recommended between the installation of laminated block flooring and the work of other trades on the job. In housing, the use of a prefinished block should be laid after all other trades are finished.

Unfinished blocks can be laid any time after building is dry.

IF OTHER MANUFACTURER'S MASTIC IS USED FOLLOW MASTIC MANUFACTURER'S INSTRUCTIONS.

for the finest in paneling and flooring insist on

Panelplank and OAK-PLY FLOOR

THE PLYWOOD COMPANY

SUMTER, SOUTH CAROLINA

also manufacturers of

"SUMTER" HOLLOW AND SOLID CORE FLUSH DOORS

Roddis Architectural Plywoods

Select from these
and many more
lovely, durable woods





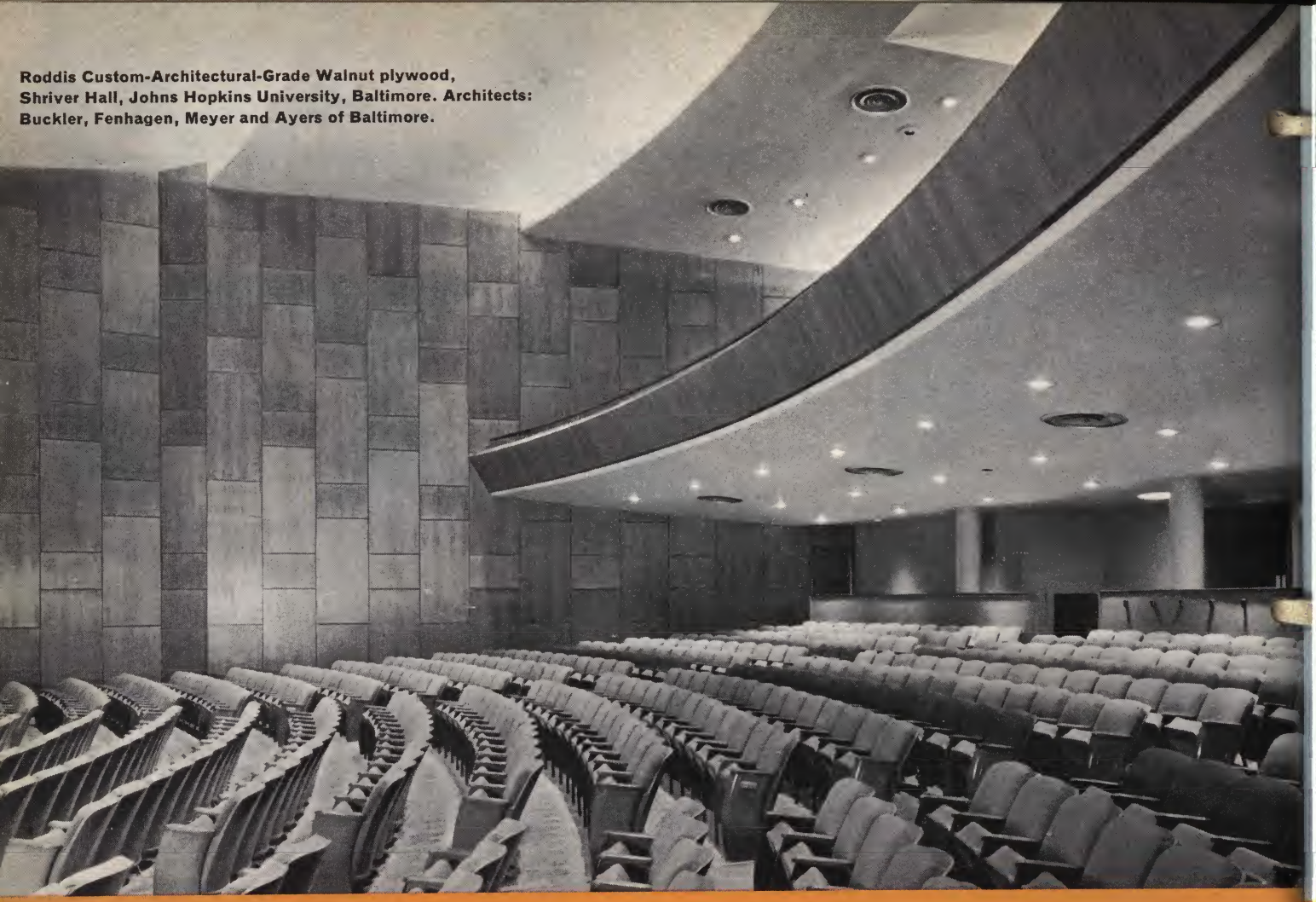




A.I.A. File No. 19-F

Roddis PLYWOOD CORPORATION · MARSHFIELD, WISCONSIN

1960



Roddis Custom-Architectural-Grade Walnut plywood, Shriver Hall, Johns Hopkins University, Baltimore. Architects: Buckler, Fenhagen, Meyer and Ayers of Baltimore.

Roddis Hardwood Paneling ... FOR THE

Guaranteed for the Life of the Installation

Roddis hardwood plywood paneling is engineered to protect your good name and is ready to respond to your imagination. Backed by over sixty years of woodworking experience, the Roddis Plywood Corporation offers foreign and domestic plywood in all available species.

At the Roddis plant at Marshfield, Wisconsin, veneers are carefully selected by specialists with years of experience. Perfect bonding with synthetic resin adhesives reflects a winning combination of time-tested wood craftsmanship and modern technology.

Here is your opportunity for perfect design expression, for Roddis hardwood plywoods have truly artistically matched veneers. Highest specifications are maintained, and only veneers are used which give rare beauty and character.

Roddis hardwood plywoods are available custom-made to your exact requirements and also in stock panels, ready for immediate delivery.

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Product Features 3

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Illustrated Wood Species 6

Finish Specifications 7

Craftwall Paneling 8-9

Installation Details 10-11

Warehouse Listing 12

On Custom-Architectural-Grade orders, you can choose from actual flitch samples, precisely matching wood character to your design. Choice veneers in all available woods, both domestic and foreign, give you unlimited choice.

In stock panels Roddis hardwood plywood is furnished in a variety of popular sizes and thicknesses. Certain species are stocked in matched sets made from complete flitches, steel strapped and numbered in rotation for easy identification.

Engineered to Protect Your Good Name

Convenient Warehouse Stocks

Stocks of Roddis hardwood plywoods are immediately available from Roddis warehouses, located in metropolitan cities throughout the United States.

Sizes include widths of 24, 30, 36 and 48 inches and lengths of 36, 48, 60, 72, 84 and 96 inches. Thicknesses are 1/8, 3/16, 1/4, 3/8, 1/2 and 3/4 of an inch.

All thicknesses are available in veneer core construction. Lumber or Timblend core construction is available in 3/4 inch thickness.



ULTIMATE IN QUALITY, BEAUTY AND DESIGN

Custom Requirements

Roddis Architectural-Grade plywood is available custom-made to your exact requirements. Actual veneer flitches are selected by the architect and the plywood paneling is manufactured per blueprint. Roddis Custom-Architectural-Grade plywood is the ultimate in wood paneling. Produced in five ply, 3/4 inch thickness, with lumber core, you are assured of satisfaction by Roddis' sixty years of fine wood craftsmanship.



Planning Centers

Why not visit the Roddis warehouse in your area (complete listing on last page). Architectural consultants are on hand to discuss your ideas with you. Paneling and doors are on display as an aid to interior planning. We are certain you will profit by such a visit. Architects, builders, dealers and interior decorators are cordially welcome at all times.



Roddis ARCHITECTURAL PLYWOOD

Architectural Grade

Short Specification: Plywood shall be sequence matched and numbered, Architectural-Grade plywood as manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin.

Long Specification: Plywood shall be sequence matched and numbered Architectural-Grade plywood as manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin. Plywood, unless otherwise specified, shall be 5 ply, ¾″ lumber core construction with no core strip over 3″ in width. Lumber used to be Aspen, Basswood or Soft Maple.

Crossbands shall be 1/20″ thick of either Basswood, Birch or Poplar, unless otherwise specified. These shall be sound veneer of random width with edges jointed and glued.

For custom requirements, include this information: Face veneers shall be standard thickness from flitches selected by the architect, and selected with

Number-One Grade

Short Specification: Plywood shall be Roddis #1 grade as manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin.

Long Specification: Plywood shall be Roddis #1 grade as manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin. Faces shall have continuity of character and balanced design, and shall be made up of one or more sections of veneer matched for color and grain at the veneer joints. Face depressions, glue stains, open joints or other manufacturing defects shall not be permitted in the faces.

Faces shall be selected for color, figure, or unselected for color, as

Fire Retardant

Underwriters' Laboratories Labeled and Listed.

Short Specification: All fire-retardant plywood, as shown on the plans and specifications, shall be manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin, to meet Federal Specification SS-A-118b (Class B), and shall be U. L. labeled and listed.

Long Specification: All fire-retardant plywood, as shown on the plans and specifications, shall be manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin, to meet Federal Specification SS-A-118b (Class B), and shall be U. L. labeled and listed.

PLYWOOD CONSTRUCTIONS for every application

VENEER CORE PLYWOOD

Plies are composed of veneers, none of which is more than 3/16″ in thickness. The number of plies varies with the stock thickness—three, five, seven, nine or even greater numbers. Drawing shows seven plies of veneer in ¾″ plywood. Balanced construction is always used, except where plywood is manufactured for curved-surface application.



LUMBER CORE PLYWOOD

The center is composed of individual wood strips edge-glued to form a single slab the size of the panel. Number 1 grade core has full-length strips, recommended for exposed or shaded-edge applications. Number 2 core is composed of all random lengths. Cut-away view shows ¾″, 5-ply construction, with No. 2 core.



CUPBOARD DOOR STOCK

Construction is 5-ply, ¾″ thick with natural Birch face and 1/20″ hardwood crossbandings. Side edges are full-length clear Pine or Aspen. Available in a variety of stock widths and lengths—widths every two inches from 12″ through 26″—lengths every twelve inches from 48″ through 96″. The clear side edges allow trimming flexibility.



COUNTERFRONTS

Counterfront face veneers are carefully selected for desired matched appearance. Pictured is standard ¾″ construction with full-length, kiln-dried lumber strips edge-glued under heat and pressure into a solid slab—a beautiful, durable unit ideally suited to stand up to the treatment expected in stores, bars and other public places.



SPECIFICATIONS

respect to cutting lengths, uniformity of color, figure, grain character and other respects.

(Note) Here list flitch numbers and specie to be used in installation.

Faces shall be one or more standard thickness veneer sheets, matched for color and grain at the joint to produce balance and continuity of character. Faces shall be selected for figure, color, or unselected for color, as specified. However, worm holes, ruptured grain, mineral streaks, discoloration, loose texture, doze or shake shall not be allowed. Piece face veneers shall be parallel clipped, jointed, and edge glued by tapeless splicer. Faces shall be book and balance matched and shall not contain open joints, depressions, glue stain or other manufacturing irregularities.

Back veneers, unless otherwise specified, shall be #3 or #4 grade of suitable wood for balancing the construction.

Plywood shall be glued with special Roddis water-resistant resin glue and processed by the hot-plate method.

Panels shall be trimmed in width and length to the specified measurements, plus or minus 1/32", unless otherwise specified.

Plywood shall be sanded both sides and fine belt sanded on face to provide suitable surface for subsequent finishing.

Finishing: Here specify factory-finishing by Roddis. Complete specifications on page 7.

---

specified. Faces shall not contain shake, doze or ruptured grain and shall otherwise equal or exceed the quality requirements listed by the U. S. Department of Commerce, Commercial Standard CS 35-56 or latest revision.

Plywood shall be bonded with urea-formaldehyde adhesive by hot-press method, unless otherwise specified.

Backs on good one side panels shall be of species and thickness to balance face veneers and shall be #4 grade or better.

Core shall be sound with tight joints and constructed to give balanced construction.

Plywood thickness shall be specified with a tolerance of plus or minus 1/32" and trimmed to specified sizes, plus or minus 1/32".

Plywood shall be sanded both sides and fine belt sanded on the face.

Finishing: Here specify factory-finishing by Roddis. Complete specifications on page 7.

Cores of panels shall be fir, basswood or cottonwood veneer, unless otherwise specified, impregnated under pressure with fire-retardant chemicals. Face veneers and back veneers shall be treated or untreated, as specified. After controlled drying, the entire plywood assembly shall be bonded into one unit with a waterproof adhesive. Plywood thickness shall be 1/4", 3/8", 1/2", 3/4" or thicker as specified.

(Note) If 3/4" lumber core fire-retardant panels are desired, these are furnished on specification having five-ply construction with cores of Aspen, Cottonwood, Basswood or Pine unless otherwise specified.

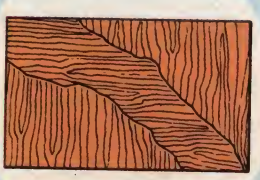
(Note) If Timblend core fire-retardant panels are desired, these are furnished on specification in thickness from 7/16"-1 3/16".

The fire-retardant panels shall then be sanded both sides and fine belt sanded on the face.

Finishing: Here specify factory-finishing by Roddis. Complete specifications on Page 7. Roddis finish has U. L. flame spread and other pertinent ratings.

BENDING CONSTRUCTION

This 1/8" waterproof plywood panel can be bent cold to a radius as small as 3". By dampening panels, a tighter radius can be formed. Cross-section shows 1/28" thickness face, 1/10" Basswood back and 1/32" Basswood center. The entire assembly is bonded with waterproof adhesive. Bending construction offered in 1/8" stock only.



BANDING

As an additional service to architects, Roddis can furnish cut-to-size plywood for cabinet doors—with one or more edges banded in the same wood as face veneer if available as lumber. Kinds of banding include: (1) exposed crossbanding, butt-joint type (illustrated) and (2) concealed crossbanding, mitered corner type.



RODDIS NEW TIMBLEND CORE

Exceptional dimensional stability is achieved with hardwood faced Timblend particle board. Timblend, produced by the Roddis Plywood Corporation in a new plant at Arcata, California, is real wood . . . but wood in a new form and with new advantages.

Timblend cores are highly resistant to warping and are ideal for cupboard doors and paneling. Compact and gap-free, edge veneering holds and a firm anchor for screws is obtained.

Hardwood faced Timblend is available in stock panels, and is available in Architectural-Grade panels on specification.



Roddis HARDWOOD PLYWOOD IS PRODUCED IN A VARIETY OF IMPORTED AND DOMESTIC VENEERS



BIRCH is one of the most popular of all hardwoods. Veneers are usually rotary-cut, but may be sliced, either flat-cut or on the quarter. Rotary-cut veneers from sapwood or heartwood are often selected for uniformity of white or red color. Consequently, Red or White Birch generally costs about 10% more than Natural Birch.



MAPLE (Sugar) is usually rotary-cut. The wood is heavy, hard and strong, with uniform close-grained texture—ideal for locations where resistance to abrasion and indentation is desired. Natural Maple costs slightly less than natural Birch. Furniture-quality Birdseye Maple costs about 75% more than Natural Birch.



OAK (Plain sliced) is generally divided into two groups—Red Oak and White Oak. Both can be rotary and half-round rotary cut, the latter method being used principally for producing Red Oak veneers. Most White Oak (and much Red Oak, too) is sliced, either flat-cut, rift-sliced or quarter-sliced.



MAHOGANY is generally specified in two commercial varieties: African Mahogany, usually quarter-sliced, costs about 15% above that of Natural Birch. Tropical American Mahogany (commonly called Honduras Mahogany), usually flat-cut and costs a little more than African Mahogany. Either type finishes beautifully.



WALNUT is conceded to be our finest domestic cabinet wood. Veneers are cut by the rotary, half-round rotary, flat-sliced and quarter-sliced methods, the latter two being the most popular. Flat-cut or Plain-sliced Walnut costs about 30% more than Natural Birch. Quarter-sliced is an additional 20% to 25% higher. Choice veneers also cut from stump, crotch and burls.



OAK (Comb grain). This grain is considered one of the most beautiful found in any hardwood. Here are costs compared with Natural Birch: Rotary, Half-round or Plain-sliced Red—about 10% more; Plain-sliced White—about 20% more; Quarter-sliced, Rift or comb-grain Red—about 30% more; Quarter-sliced, Rift or Comb-grain White—about 40% more.



PRIMA VERA is a straight-grained, yellowish white to light yellow-brown wood from Central America. It is known as Palo Blanco, Blanco and White Mahogany, and is not a true Mahogany. Veneers are usually quarter-sliced and available with medium or good figure. Costs range from 50% to 70% more than Natural Birch. Hard and close-grained.



AVODIRE is another of the popular blonde woods from Africa. The color varies from dull paper white to a light golden cream and is strongly figured and of fine texture. Veneers are quarter-sliced. The cost is approximately 25% above that of Natural Birch for medium figure and about 45% above for good figure.



BLONDE LIMBA is also a popular light-colored wood. Veneers are quarter-sliced and are ash-blonde in color with light tan stripes. The open-texture and straight grain finishes beautifully. The moderate cost is only 20% more than Natural Birch. Highly recommended for both commercial and contemporary residential interiors.



ELM (Sliced) is a very beautiful and serviceable wood, accepting natural and stained finishes equally well. The heartwood is a light brownish red, tinged with darker brown ring marks. Rotary-cut veneers show considerable figure. Price for sliced is about 10% higher than Rotary Natural Birch.



WHITE ASH (Sliced) is tough, hard and white—ideal for interior use where these wearing and appearance characteristics are desirable. It also shares extensive commercial usage with Hickory. Select White Ash costs approximately 40% more than Natural Birch. Unselect White Ash is about 20% more.



CHEN CHEN is also imported from Africa. The quarter-sliced veneers are white to yellowish-gray and are striped similarly to Mahogany. The cost is moderate for so beautiful a wood, being about 15% above Natural Birch. The wood is softer than Prima Vera and finishes well. Its uniform figure makes it ideal for interiors of all kinds.

RODDIS PLYWOOD

Now available with factory *prime* and *seal* protection—*Complete finishing* job also offered.

Architects are quickly seeing the important cost-savings and numerous other advantages of having paneling PRIMED AND SEALED at the factory. This new service from Roddis makes possible a uniform, perfect first coat on every panel. It means factory-to-installation protection and finer finishing results on the job.

Roddis Prime and Seal—locks in wood beauty; shuts out dirt, disfiguring stains, and troublesome moisture during transportation and storage. Final finishing of paneling on the job is made practically foolproof.

This Roddis process can reduce finishing costs substantially because it does away with all preparatory finishing steps. With Roddis Prime and Seal, the only work required is the application of the final finish. As many as five time-consuming and costly steps are eliminated. Any good oil or alcohol soluble stain may be used for coloring.

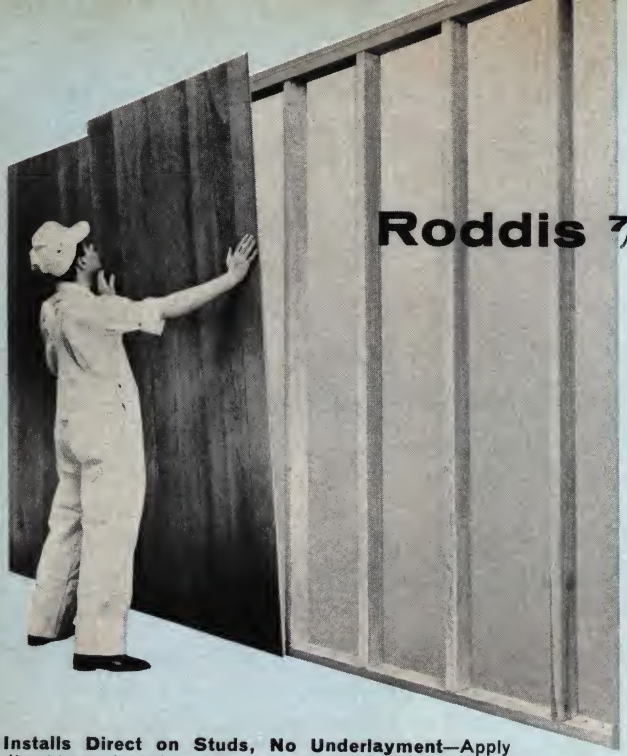
Complete Finishing—Roddis will also do the complete custom pre-finishing of hardwood plywood . . . from prime and seal to final finish coat. Colors may be selected, and either durable Roddis Craftwall finishes or finishes of other manufacturers are available. Finished wood samples are available on request.

Match Plywood and Doors—Because Roddis hardwood plywood and Roddis flush veneered doors are produced in the same plant, it is a simple matter for Roddis to handle the finishing of both your plywood and doors. Close coordination of finishes and techniques assures beautiful results.

Specifications . . . Roddis Primed and Sealed Plywood
Plywood shall be primed and sealed by the Roddis Plywood Corporation, Marshfield, Wisconsin, utilizing a Roddis synthetic sealer in combination with a series of sanding, polishing operations and inspections. Plywood so processed shall be ready for final finish coat.

Specifications . . . Roddis Completely Finished Plywood
Plywood shall be completely finished by the Roddis Plywood Corporation, Marshfield, Wisconsin, utilizing Roddis finishes (unless others are specified). Plywood shall be sealed, filled (if required), and stained (to specified color) with the plywood properly sanded and primed to give a smooth base for two cover coats of Roddis semi-gloss Clear finish. Plywood shall be packaged prior to shipment.

Note: Conveniently packaged Roddis finishes are available for finishing molding and trim.



Installs Direct on Studs, No Underlayment—Apply direct to studs and save on material and labor.

Permanently finished wood paneling of exceptional strength and rigidity. Works and handles like ¾" material—yet costs far less.

Roddis 7/16" Architectural Craftwall

Roddis 7/16" Architectural Craftwall is a new kind of wood paneling. Extra strong, stable, and with a "solid feel," it offers many of the characteristics of the finest ¾" paneling at real cost savings.

The secret of 7/16" Architectural Craftwall's high strength and stability is its center core of ⅜" Roddis Timblend. This man-made board is produced by a patented process. It gives Architectural Craftwall its true "solid feel" and maximum freedom from movement on the wall.

Hand selected by Roddis Craftsmen, the exquisite veneers used on this product lend dramatic beauty and good taste to every type of installation. And Architectural Craftwall's hand-rubbed effect is created by the application of a durable synthetic finish. This finish withstands repeated contact with water, alcohol, dust, grease, inks and ordinary chemicals.

CHOICE OF 9 BEAUTIFUL WOODS

IDEAL FOR RESIDENTIAL OR COMMERCIAL INSTALLATIONS

ELM • OAK • SHERWOOD OAK • CHERRY • PASTEL CHERRY • WALNUT • MAHOGANY • BIRCH • SILVER BIRCH

Fire-retardant grade available. Manufactured to meet Federal Specification SS-A-118b (Class B). Underwriters' Laboratories labeled and listed. Prices shown are for regular material.



Sherwood Oak, Style 100—Approximately .81 per sq. ft.



Cherry, Style 300—Approximately .90 per sq. ft.

New Roddis 7/16" Architectural Craftwall is guaranteed for the life of the installation

Excellent Acoustical Values—Tests prove Architectural Craftwall applied directly to studs compares favorably in sound reduction to conventional plaster and drywall construction.

Easy Installation—Edges are half beveled. When butt jointed, a complete V-groove is always formed. For nail concealment, V-grooves are machined to fall 16" on center. May also be applied with contact adhesives.

No Underlayment Necessary—Can be installed directly on studs or furring strips. Cuts costs.

Complete Package—Roddis furnishes everything to complete the paneling package: Contemporary or traditional style hardwood molding and trim . . . Roddis finishes to match trim to Architectural Craftwall . . . and color blended putty sticks for final finishing over nailing.

SPECIFICATIONS

Short Specification: Prefinished paneling shall be 7/16" Architectural Craftwall (give species of wood and style), manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin.

Note: If fire-retardant material is desired, specification should include—shall be manufactured to meet Federal Specification SS-A-118b (Class B) and shall be Underwriters' Laboratories labeled and listed.

Long Specification: Prefinished paneling shall be 7/16" Architectural Craftwall (give species of wood and style), manufactured by the Roddis Plywood Corporation, Marshfield, Wisconsin. Panels shall be 7/16" thick with V-grooves machined on veneer joints and having exclusive Roddis Timblend core.

Note: If fire-retardant material is desired, specification should include—shall be manufactured to meet Federal Specification SS-A-118b (Class B) and shall be Underwriters' Laboratories labeled and listed.

Backs of panels shall be #4 grade veneer or better and backs shall be treated with a Roddis sealer to form a moisture barrier. Face veneers shall be standard thickness, bonded to the Timblend core with ureaformaldehyde adhesive by the hot-press method.

Panels shall be finished by the exclusive Craftwall process utilizing Roddis conversion-type synthetic finishes and shall be packaged for protection in shipment.

2 STYLES— VARIETY OF SIZES

All nine Architectural Craftwall woods are available in style 100 (V-grooved only) and in style 300 (V-grooved, cross-scored and pegged). Also available without V-grooves, factory finished and in the white. Sizes includes 48" x 84", 108", 120" with lengths up to 16' available in most woods.

Regular Craftwall ¼" factory finished paneling is available for those who require a thinner paneling. This may be obtained fire-retardant treated.



Walnut, Style 100—Approximately .87 per sq. ft.



Elm—Approximately .80 per sq. ft. in style 100.



Pastel Cherry—Approximately .87 per sq. ft. in style 100.



Birch—Approximately .77 per sq. ft. in style 100.



Oak—Approximately .81 per sq. ft. in style 100.



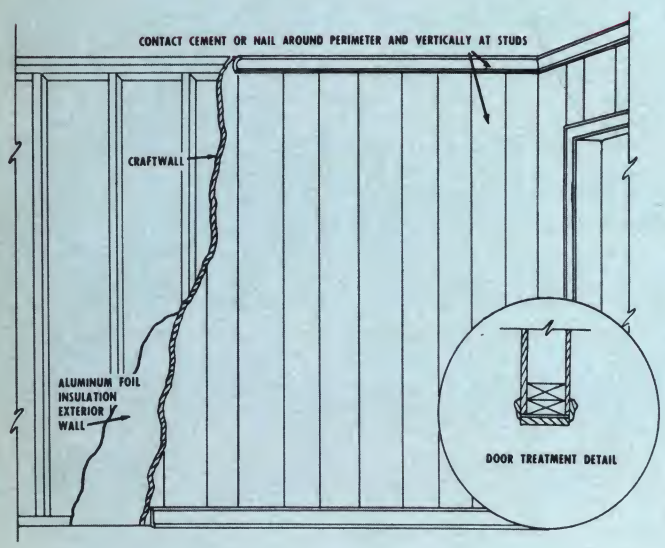
Silver Birch—Approximately .77 per sq. ft. in style 100.



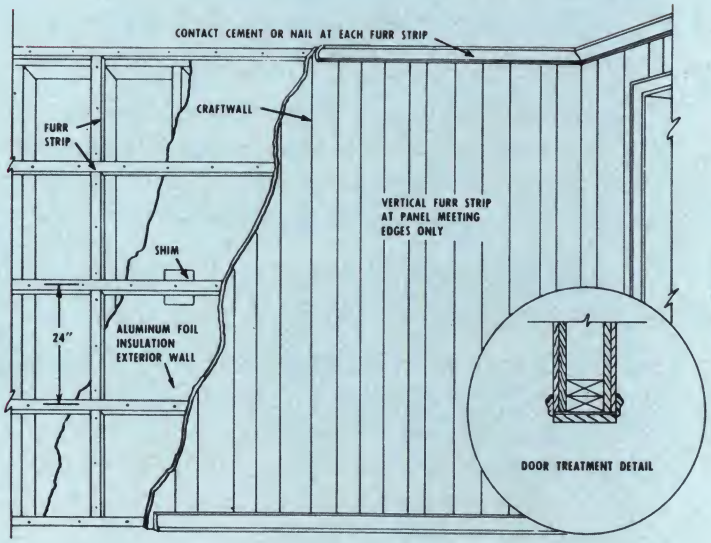
Mahogany—Approximately .80 per sq. ft. in style 100.

Roddis Details

INSTALLATION OF 7/16" ARCHITECTURAL CRAFTWALL



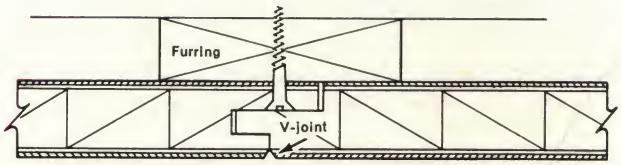
7/16" Architectural Craftwall direct to Studs, 16" O.C.



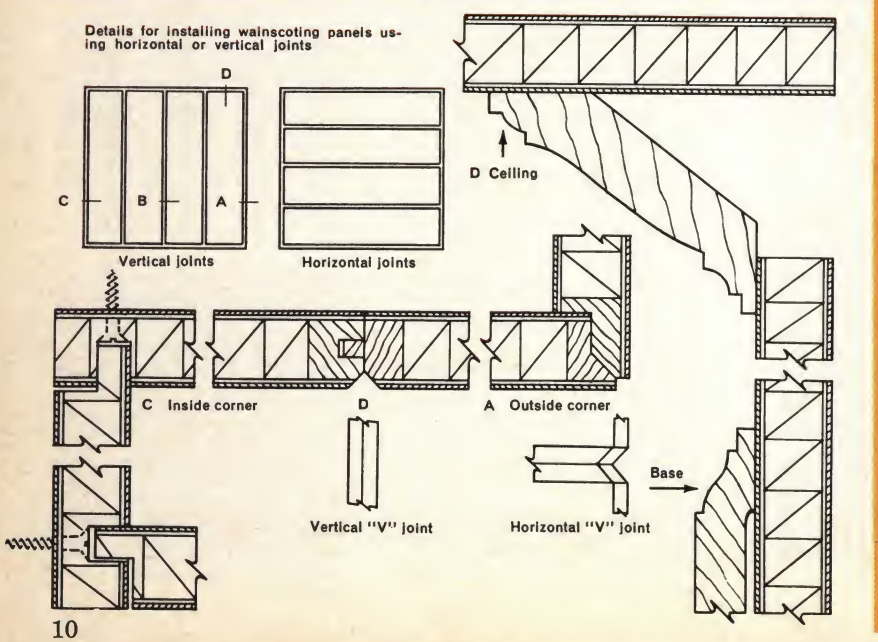
7/16" Architectural Craftwall over Furred Studs, 16" O.C.

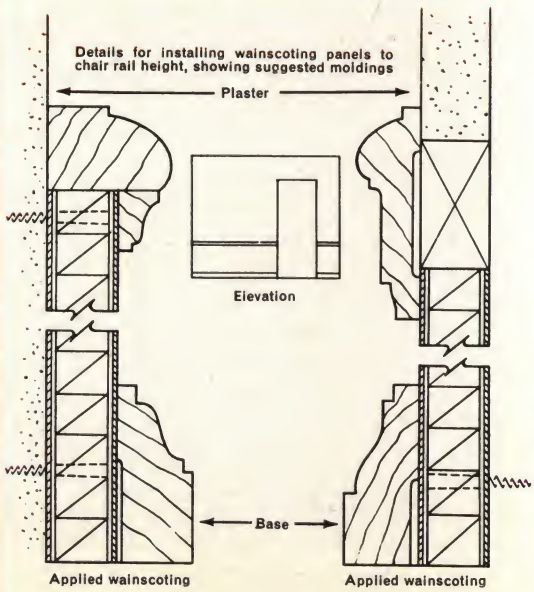
WAINSCOTING DETAILS

¾" Paneling



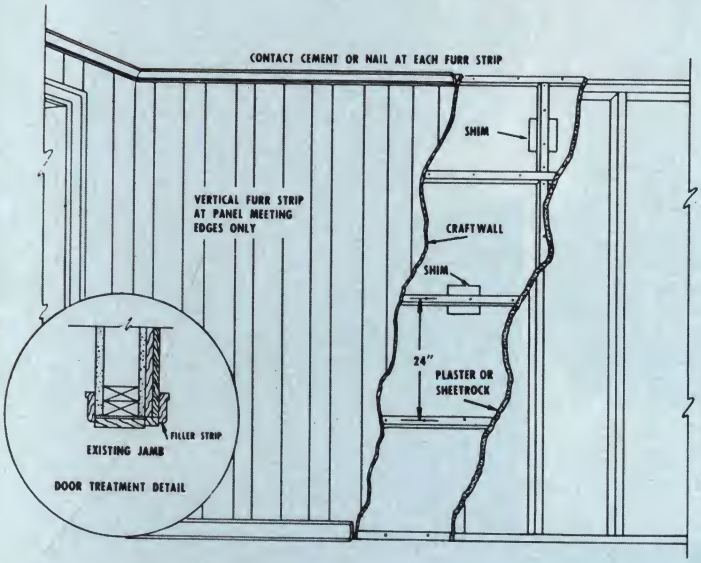
Method showing offset tongue and groove joint to make tight V-joints



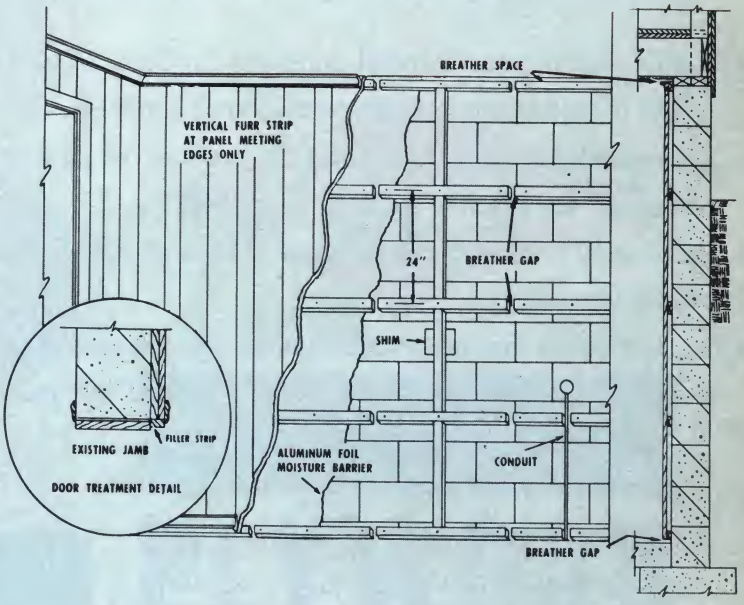


OTHER DETAILS AVAILABLE

A comprehensive series of charts has been developed on ¼" paneling details. These are available on request.



7/16" Architectural Craftwall over Furred Plaster or Sheetrock

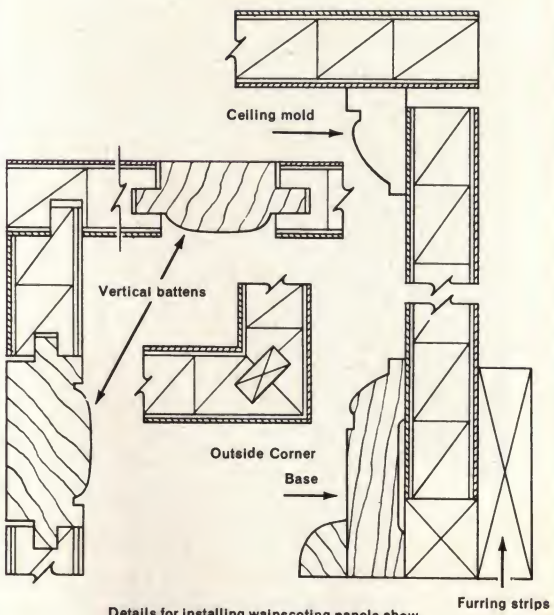


7/16" Architectural Craftwall on Concrete Below Grade

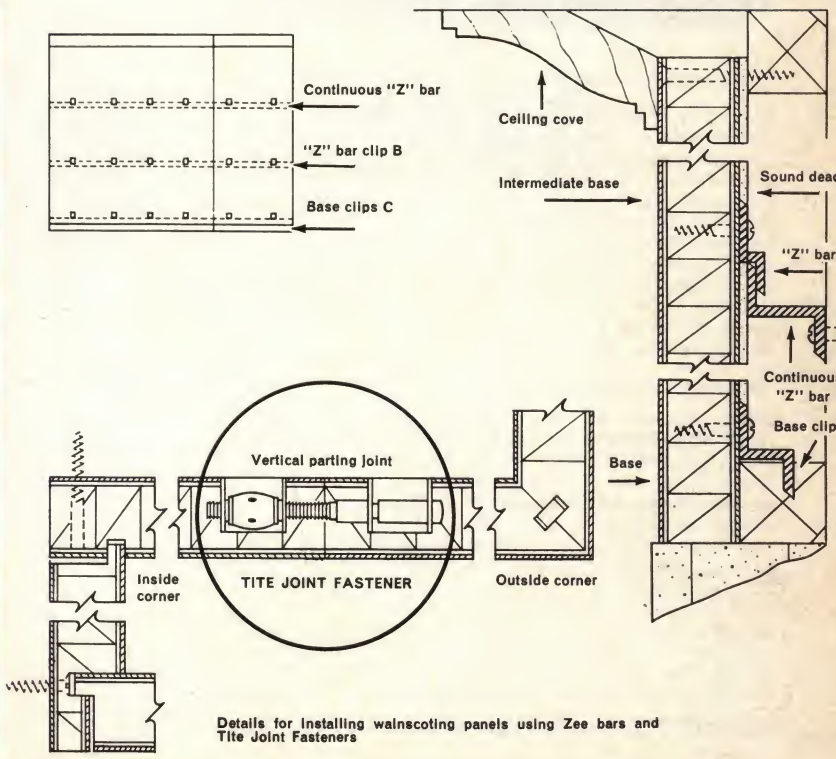
IMPORTANT . . .

Follow these Simple Instructions for Trouble-Free Installations

1. Don't begin paneling until installation location is warm and dry. If paneling isn't backsealed—it is necessary to seal it.
2. Stand panels around the room for at least 24 hours so they can take on the conditions of their surroundings (normal living conditions).



Details for installing wainscoting panels showing flush application for battens



Details for installing wainscoting panels using Zee bars and Tite Joint Fasteners

Roddis

ORDERING INFORMATION

- Roddis has at your disposal complete facilities to aid you in the use of its fine line of architectural wood products.
- Trained architectural consultants are located in key cities throughout the country ready to be of help.
- Conveniently located offices carry stocks of Roddis products for fast service.
- It pays to do business with Roddis, the company that has been serving the building industry for over half a century.

VENEER SAMPLE BOOK

A veneer sample book containing 51 samples of actual veneers is available on a loan basis from your nearest Roddis office.



OTHER PRODUCTS

DOORS • TIMBLEND • HARDWOOD TRIM • FINISHES • FIR PLYWOOD • ADHESIVES • GARAGE DOORS • TEXTURED PANELING • DECORATIVE PLASTICS SURFACING

Roddis BRANCH OFFICES

You are cordially invited to vist Roddis branch office showrooms

Atlanta, Ga.—1545 Marietta Blvd., N. W.
Baltimore, Md.—2020 W. Mosher
Cambridge, Mass.—229 Vassar St.
Charlotte, N. C.—123 E. 27th St.
Chicago, Ill.—3865 W. 41st St.
Cincinnati, Ohio—836 Depot St.
Cleveland, Ohio—6599 Schaaf Rd.
Dearborn, Mich.—13500 Rotunda Drive
Los Angeles, Calif.—2620 E. Vernon Ave.
Louisville, Ky.—1443 S. 15th St.
Miami, Fla.—253 N. E. 73 St.
Milwaukee, Wis.—4601 W. State St.
Newark, N. J.—Bldg. 208A, Port St.
New Hyde Park, L. I., N. Y.—1756 Plaza Ave.
New York, N. Y.—920 E. 149 St.
Oakland, Calif.—Corner W. Grand and Magnolia
Philadelphia, Pa.—S. W. Corner Richmond and Tioga Sts.
Pittsburgh, Pa.—1204 Saw Mill Run Blvd.
St. Louis, Mo.—3344 Morganford Rd.
St. Paul, Minn.—635 N. Prior Ave.
San Francisco, Calif.—925 Toland St.
Syracuse, N. Y.—P. O. Box 26, Eastwood Station

ASSOCIATED BRANCH OFFICES • *Roddis Products are also stocked at these locations:*

Billings, Montana—Billings Sash and Door Co., 116 North 20th St.
Birmingham, Alabama—United Plywoods Corp., P.O. Box 1088
Colorado Springs, Colorado—Boddington Lumber Co., P. O. Box 654
Dallas, Texas—Roddis Lumber and Veneer Co., 8200 Lovett St.
Houston, Texas—Roddis Lumber and Veneer Co., 2415 11th St.
Kansas City, Kansas—Roddis Lumber and Veneer Co., P. O. Box 57, Rosedale Station
New Orleans, Louisiana—Tulane Hardwood Lumber Co., 4200 Tulane Ave.
Phoenix, Arizona—Southwestern Glass and Millwork Co., 1655 W. Jackson
Portland, Oregon—Lumber Products, 2116 N. W. 20th Ave.
Reno, Nevada—Vaughn Millwork Co., P. O. Box 679
San Antonio, Texas—Roddis Lumber and Veneer Co., 727 N. Cherry St.
Salt Lake City, Utah—R. W. Frank Co., 120 S. 5th Street, West
Seattle, Washington—Ehrlich-Harrison Co., 60 Spokane St.
Toronto, Ontario, Canada—Kingsway Lumber Co., Ltd., 5525 Dundas

RODDIS PLYWOOD CORPORATION, Marshfield, Wisconsin

R. P. C. 129-60-80M

A.I.A. No. 23-L



Simpson®

PLYWOOD CATALOG

1960

A.I.A. No. 23-L



Simpson

SIMPSON

WHAT IS PLYWOOD?

Plywood is real wood manufactured into large, light, extra strong panels. Selected logs are peeled or sliced to form precise wood veneers. It is an engineered product made of an odd number of the thin veneers (plys)—three, five, seven—placed so the grain of one ply is at right angles to the next. Wood is much stronger along the grain than across the grain. In plywood, cross lamination distributes wood's along-the-grain strength in both directions. That's why plywood is strong both along and across the panel . . . why it is relatively splitproof, punctureproof. Pound for pound, it is one of the very strongest materials known.

SPECIFY FROM TWO TYPES OF SIMPSON PLYWOOD

Simpson plywood comes in two types (as well as several appearance "grades" within each type). "Type" refers to the glue bond used between plys.

EXTERIOR-TYPE plywood glue is completely waterproof. The bond is stronger, more durable than the wood itself. It cannot be weakened by time, weather, or even boiling water.

INTERIOR-TYPE is made with highly moisture-resistant (but NOT waterproof) glue. It will withstand occasional wetting during construction, but should never be permanently exposed to the elements.

THERE IS A SIMPSON PLYWOOD GRADE FOR EVERY REQUIREMENT

"Grade" refers to appearance quality of veneer used for the face and back and inner plys of the panels. Letters or numbers indicate appearance quality of veneer used. These veneers in different combination enable Simpson to produce grades that meet the exact needs of any given job. Registered DFPA grade-trademarks adopted by Simpson appear on back or edge of all Douglas Fir panels.

To maintain grade-trademark privileges, Simpson must pass inspection several times each month made by DFPA quality supervisors. Inner plys, outer plys and glues are checked most carefully.

Scientific testing in Simpson laboratories of thousands of samples of current production is a further check in determining Simpson glue-line quality and durability.



PLYWOODS

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HOW TO SPECIFY—Simpson Figured Grain Redwood Plywood, No. of pieces, thickness, width, length, grade, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show.





Simpson

FIGURED GRAIN

REDWOOD

PLYWOOD

METHOD OF MANUFACTURE—Simpson Figured Grain Redwood Plywood is made by bonding flat sliced Grade A face veneers to inner plys of either fir or redwood.

DURABILITY—Inside or outside, nothing surpasses Redwood for its resistance to weather, mold, insects or other wood enemies. For localities where termites are a problem, the mill will furnish a redwood core on special quotation.

STRENGTH—Simpson Figured Grain Redwood Plywood combines the inherent strength of redwood with the additional strength gained in the manufacture of plywood.

FINISHING—Redwood, more than any other wood, lends itself to an immense variety of grain-flattering stain finishes.

FACE GRADE—GRADE A—Grade A shall be of one or more pieces of veneer, reasonably matched for color. Tight burls and pin knots shall be permitted. Knots other than pin knots and sapwood shall not be admitted.

Panel Grade	Face Grades	Back Grades[2]	Inner Ply Grades[2]	Glue Bond
A-A	A	A	C[1]	Fully Waterproof Exterior
A-2	A	2	C[1]	
A-3	A	3	C[1]	
A-C[1]	A	C[1]	C[1]	

Width	Length	Thicknesses	Number of Plys	Approx. Wt. lbs. per M ft.
48″	96″	¼″	3	790
		⅜″	3	1125
		½″	5	1525
		⅝″	5	1825
		¾″	5	2225

NOTES: [1] Redwood or fir at mill option.
[2] 100% redwood heartwood available on special quotation.

IMPORTANT: Panels should be edge-sealed and back primed for maximum weather resistance when used outdoors.



NATURAL

HOW TO SPECIFY—Simpson Rift Grain Redwood Plywood, No. of pieces, thickness, width, length, grade, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show.

PLANKED

Simpson

RIFT GRAIN

REDWOOD

PLYWOOD

METHOD OF MANUFACTURE—Simpson Rift Grain Redwood Plywood is made by bonding flat sliced Grade A face veneers to inner plys of either fir or redwood.

DURABILITY—Inside or outside, nothing surpasses redwood for its resistance to weather, mold, insects, or other wood enemies. For localities where termites are a problem, the mill will furnish a redwood core on special quotation.

STRENGTH—Simpson Rift Grain Redwood Plywood combines the inherent strength of redwood with the additional strength gained in the manufacture of plywood.

FINISHING—Redwood, more than any other wood, lends itself to an immense variety of grain-flattering stain finishes.

FACE GRADE—GRADE A—Grade A shall be of one or more pieces of veneer, reasonably matched for color. Tight burls and pin knots shall be permitted. Knots other than pin knots and sapwood shall not be admitted.

Panel Grade	Face Grades	Back Grades[2]	Inner Ply Grades[2]	Glue Bond
A-A	A	A	C[1]	Fully Waterproof Exterior
A-2	A	2	C[1]	
A-3	A	3	C[1]	
A-C[1]	A	C[1]	C[1]	

Width	Length	Thicknesses	Number of Plys	Approx. Wt. lbs. per M ft.
48″	96″	¼″	3	790
		⅜″	3	1125
		½″	5	1525
		⅝″	5	1825
		¾″	5	2225

NOTES: [1] Redwood or fir at mill option.
[2] 100% redwood heartwood available on special quotation.

IMPORTANT: Panels should be edge-sealed and back primed for maximum weather resistance when used outdoors.



HOW TO SPECIFY—Simpson Redwood Plyweave, No. of pieces, thickness, width, length.

HOW TO SPECIFY—Simpson Redwood Rusticwood, No. of pieces, thickness, width, length.



REDWOOD
PLYWEAVE
PLYWOOD

METHOD OF MANUFACTURE—Simpson Redwood Plyweave is made by bonding specially selected vertical grain veneers to a core of fir or redwood at mill option. The redwood face is then embossed under great heat and pressure.

DURABILITY—Inside or out, redwood is unharmed by weather, insects, or other wood enemies. Where termites are a problem, the mill will furnish a redwood core on special quotation.

DECORATIVE SQUARES—Redwood Plyweave is available in squares 11⅞" x 11⅞" x 5/16" and 15⅞" x 15⅞" x 5/16". Cartoned 25 to a box.

NAILING—Straight beaded strips every 8" across the panel make butt joints and nailing invisible and aid in locating studs on 16" or 24" centers.

FACE GRADE—SELECT—Selected rift grain redwood veneers, with only inconspicuous shim patches permitted.

Panel Grade	Face Grades	Back Grades[2]	Inner Ply Grades[2]	Glue Bond
Special	Select	C[1]	B[1]	Fully Waterproof Exterior
Width[3]	**Length**	**Thick-nesses**	**Number of Plys**	**Approx. Wt. lbs. per M ft.**
48"	96"	¼"	3	790

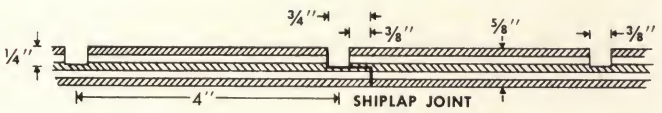
NOTES: [1] Redwood or fir at mill option.
[2] 100% redwood heartwood available on special quotation.
[3] Available in squares 11⅞" x 11⅞" x 5/16" and 15⅞" x 15⅞" x 5/16", 25 to a box.

REDWOOD
RUSTICWOOD
PLYWOOD

METHOD OF MANUFACTURE—Simpson Redwood Rusticwood is made by bonding specially selected veneers of rotary cut redwood to cores of Douglas Fir. The face is wirebrushed to bring the natural grain into bold relief. Vertical channels, ¼" deep by ⅜" wide, are cut into the face on 4" centers. Edges are shiplapped so that when panels are joined, the joint becomes a part of the vertical channeling.

DURABILITY AND STRENGTH—Redwood Rusticwood presents a face that resists weather, insects and other wood enemies. Rusticwood has the strength and rigidity of Douglas Fir plywood, and meets the FHA requirements for exterior walls without sheathing.

FACE GRADE—SPECIAL—Figured grain redwood veneer, specially selected for pleasing grain patterns and absence of flaws. Only small inconspicuous shim patches are permitted.



Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
Special	Select	C Fir	C Fir	Fully Waterproof Exterior
Width	**Length[1]**	**Thick-nesses**	**Number of Plys**	**Approx. Wt. lbs. per M ft.**
48⅜"	96"	⅝"	5	1825

NOTE: [1] Also available in 9 and 10 foot lengths.

IMPORTANT: Panels should be edge-sealed and back primed for maximum weather resistance when used outdoors.



HOW TO SPECIFY – Simpson Redwood Shadowood, No. of pieces, thickness, width, length, natural or planked.
PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show.





Simpson

REDWOOD

SHADOWOOD

PLYWOOD

METHOD OF MANUFACTURE—Simpson Redwood Shadowood is made by bonding selected veneers of flat sliced or peeled redwood to cores of either redwood or fir at mill option. Wire brushes etch away the soft wood surface, leaving an exposed grain pattern of unusual toughness and beauty.

DURABILITY—In either interior or exterior applications, redwood is not harmed by weather, insects, or other wood enemies. Where termites are a problem, the mill will furnish redwood plywood with redwood cores on special quotation.

FINISHES—Redwood Shadowood may vary in color from a light rose to a deep russet color. It lends itself to a large variety of natural or two-tone finishes.

DECORATIVE SQUARES—Redwood Shadowood is available in squares 11⅞" x 11⅞" x 5/16" and 15⅞" x 15⅞" x 5/16". Cartoned 25 to a box.

FACE GRADE – SELECT – Shadowood faces are specially selected for pleasing grain patterns and absence of flaws. Only small, inconspicuous shim patches are permitted.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
Special	Select	D	Redwood or Fir at mill option[1]	Fully Waterproof Exterior

Width[3]	Length	Thicknesses[2]	Number of Plys	Approx. Wt. lbs. per M ft.
48"	96"	3/16"	3	950

NOTES: [1] 100% redwood heartwood panels available at slight extra cost.
[2] Other thicknesses on special quotation.
[3] Available in squares 11⅞" x 11⅞" x 3/16" and 15⅞" x 15⅞" x 3/16", 25 to a box.

IMPORTANT: Panels should be edge-sealed and back primed for maximum weather resistance when used outdoors.



NATURAL

HOW TO SPECIFY – Simpson Knotty Pine Plywood, No. of pieces, thickness, width, length, grade, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show.



PLANKED



This highly versatile wood enhances any interior decor.

Simpson

KNOTTY PINE

PLYWOOD

METHOD OF MANUFACTURE—Simpson Knotty Pine plywood is made by bonding specially selected veneers of Grade A Idaho Knotty Pine to inner plys of Douglas Fir. All face veneers are mismatched to eliminate annoying knot pattern repetition.

STRENGTH—Face veneer is of Knotty Pine. The remainder of the panel is strong, tough, thrifty Douglas Fir. This economy of construction, together with plywood's strength of cross-lamination, makes Simpson Knotty Pine plywood an ideal building material (pound for pound stronger than steel).

FINISHING—Knotty Pine may be stained, bleached, or finished in its natural color. See Simpson's Manual on Finishing Plywood for ideas on finishing all Simpson plywoods.

PRACTICAL—Knotty Pine plywood is practically maintenance free. Apply a wax occasionally, or if any parts are soiled, clean them with mild soap suds and water.

FOR WALLS—Use ¼ inch Simpson Knotty Pine directly to studding or for best construction apply over underlay of 5/16 inch Simpson Douglas Fir plywood (Plyscord grade).

FACE GRADE—GRADE A—Veneers must be mismatched for pleasing knot pattern. These variations are permitted—solid knots and neatly puttied knotholes up to one inch in diameter.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
A-A A-2 A-3	A A A	A 2 3	C C C	Water Resistant Interior

Width	Length	Thick-nesses	Number of Plys	Approx. Wt. lbs. per M ft.
48″	96″	¼″	3	790
		¾″	7	2225

SIMPSON KNOTTY PINE FACES are cut 1/10″ thick, as compared with the industry average of only 1/16″.



HOW TO SPECIFY—Simpson Douglas Fir Plywood, No. of pieces, thickness, width, length, interior or exterior, grade, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show. Available only in 48" widths.



DOUGLAS FIR
PLYWOOD

Panel Grade	Face Grade	Back Grade	Inner Ply Grade	Width	Length	Thickness
EXTERIOR GRADES: Completely waterproof phenolic resin glue						
EXT-DFPA A-A * ** ***	A	A	C	4'	8' 9' 10' 12'	¼ ⅜ ½ ⅝ ¾
	For permanent outdoor uses where appearance of both sides is important, such as outdoor furniture, carports, signs.					
EXT-DFPA A-B * **	A	B	C	4'	8' 9' 10' 12'	¼ ⅜ ½ ⅝ ¾
	For permanent outdoor uses where appearance of only one side is of most importance.					
EXT-DFPA PLYSHIELD * ** ***	A	C	C	4'	8' 9' 10' 12'	¼ ⅜ ½ ⅝ ¾
	"One side" grade for siding, soffits, fences, store fronts.					
EXT-DFPA UTILITY B-C	B	C	C	4'	8' 9' 10' 12'	¼ ⅜ ½ ⅝ ¾
	For most outdoor building where the very best appearance is not required, as for farm buildings, underlayment.					
EXT-DFPA PLYFORM B-B	B	B	C	4'	8'	⅝ ¾
	For maximum re-use as concrete forms.					
EXT-DFPA SHEATHING	C	C	C	4'	8' 9' 10'	5/16 ⅜ ½ ⅝ ¾
	C	D	D	4'	8' 9' 10'	5/16 ⅜ ½ ⅝ ¾
	Unsanded construction panel with waterproof bond, for use as exterior sheathing or as backing on rough construction exposed to weather or excess moisture.					
BOAT HULL EXT-DFPA A-A	A	A	B	4'	8' to 24'	¼ ⅜
	For use in boat hulls and superstructures where appearance of both sides is important.					
BOAT HULL EXT-DFPA A-B	A	B	B	4'	8' to 24'	¼ ⅜
	For use in boat hulls and superstructures where only one side is exposed.					
INTERIOR GRADES: Moisture-resistant glue						
INTERIOR A-A DFPA ***	A	A	D	4'	8' 9' 10'	¼ ⅜ ½ ⅝ ¾
	For all interior applications where both sides are to be exposed and appearance is important.					
INTERIOR AB-B DFPA	A	B	D	4'	8' 9' 10'	¼ ⅜ ½ ⅝ ¾
	For all inside uses requiring one surface of highest appearance and opposite side solid and smooth.					
PLYPANEL ***	A	D	D	4'	8' 9' 10'	¼ ⅜ ½ ⅝ ¾
	The many-purpose "one side" plywood for paneling, built-ins, backing and underlayment, counters, displays, cut-outs.					
INTERIOR B-D DFPA	B	D	D	4'	8' 9' 10'	¼ ⅜ ½ ⅝ ¾
	Utility panel for uses requiring one smooth, solid side, such as backing, cabinet sides, underlayment.					
PLYSCORD	C	D	D	4'	8' 9' 10'	5/16 ⅜ ½ ⅝ ¾
	Structural grade unsanded sheathing for use on walls and roofs, sub-flooring, temporary enclosures, containers, barricades.					
2 • 4 • 1	C (Rep'd)	D	D	4'	8'	1⅛
	New Combination sub-floor and underlayment base for tile, linoleum, carpeting and wood strip flooring. Used on 4-foot span grid system.					

Thicknesses	Number of Plys	Weight per M Ft.
¼	3	790
5/16	3	950
⅜	3	1125
½	5	1525
⅝	5	1825
¾	5	2225
1⅛	7	3350

*JUMBO PANELS are available in widths from 4 to 8 feet and in lengths from 8 to 12 feet.

**LONG-LENGTH PANELS are available in widths from 4 to 6 feet and lengths from 9 to 30 feet (or longer, on special quotation).

***HANDY PANELS are available size 24" x 48".

For complete information on DFPA grade definitions, properties, applications, etc., please refer to DFPA Catalog 5b/Do Sweet's Architectural File or 2b/Do Sweet's Light Construction File.



NATURAL

HOW TO SPECIFY—Simpson Rift Grain Fir Plywood, No. of pieces, thickness, width, length, interior or exterior, grade, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show. Available only in 48″ widths.



PLANKED



Simpson

RIFT GRAIN FIR

PLYWOOD

HARDNESS—The grain of the hard summer-growth Douglas Fir is closely spaced to present a uniform tough face. When painted, there is no show or transfer through of the grain.

RIGIDITY—Douglas Fir is one of the most dense of commercial wood fibers. Cross-banded plys give it far greater structural rigidity and strength than ordinary lumber. Panels have excellent nail holding properties and cannot split.

SMOOTH SURFACE—Wonderful for overlays, counter tops and painted surfaces. Low shrinkage factors makes it one of the most dimensionally stable woods.

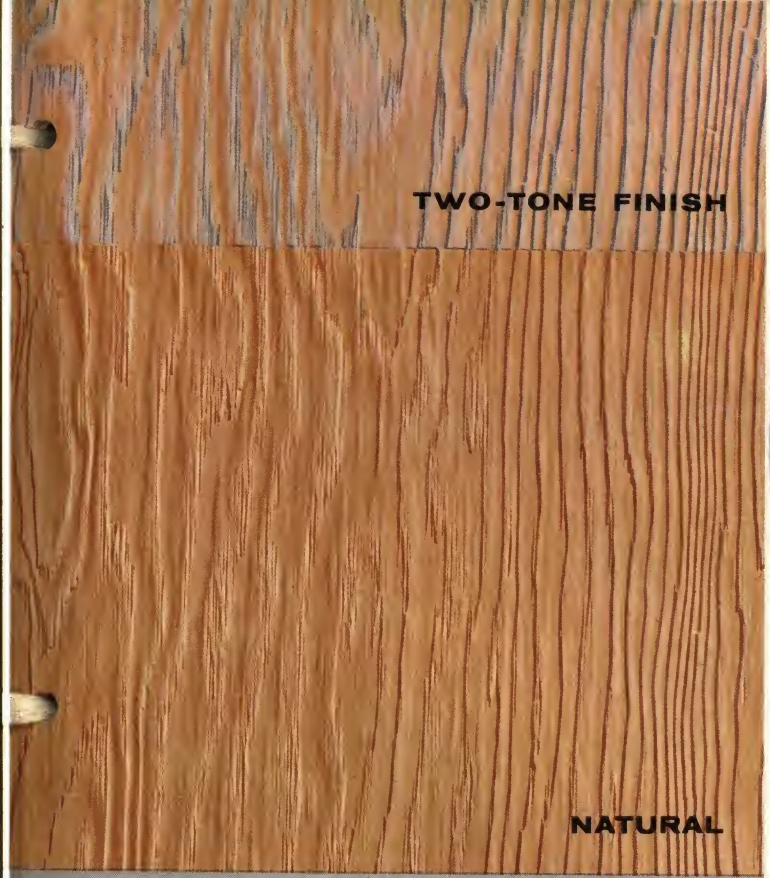
DURABILITY—Retains the strength factors of the Douglas Fir's long fibres. Excellent for use where panels will be under stress, such as for boats, curved walls, etc.

FACE GRADE—GRADE A—Faces of reasonably matched grain with only slight discoloration and sap. Not less than eight growth rings per inch. Neatly repaired defects permitted.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
A - A A - 2 A - 3 A - C	A A A A	A 2 3 C	Solid cross band next to faces	Fully Waterproof Exterior[1] or Water Resistant Interior

Width[2]	Length[2]	Thick-nesses	Number of Plys	Approx. Wt. lbs. per M ft.
48″	96″	¼″	3	790
		⅜″	5	1125
		½″	5	1525
		⅝″	7	1825
		¾″	7	2225

NOTES: [1] Available at slight extra cost.
[2] Other sizes available on special quotation.



HOW TO SPECIFY—Simpson Fir Shadowood Plywood, No. of pieces, thickness, width, length, interior or exterior, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show.





Simpson

FIR

SHADOWOOD

PLYWOOD

METHOD OF MANUFACTURE—Simpson Fir Shadowood is made by wire-brushing the softwood from the surface of select-grade face veneer, leaving the hard, swirling growth patterns in dramatic relief.

HARDNESS—In etching away the surface softwood, the large rotary wire brushes leave a raised pattern of the harder grain, giving the panels a tough, scuff-resistant surface.

RIGIDITY—Fir Shadowood has all the strength factors of Douglas Fir plywood and can be used in accordance with FHA regulations and the uniform building code.

FINISHING—The raised pattern of Shadowood makes it especially well suited to a variety of two-tone paint finishes as well as stains and clear finishes.

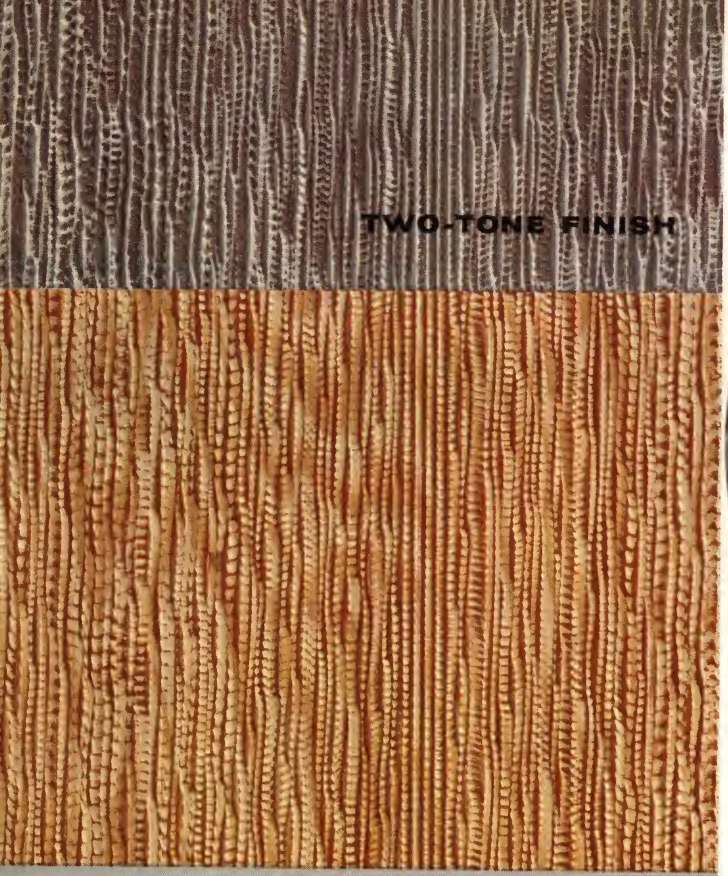
DECORATIVE SQUARES—Fir Shadowood is available in squares 11⅞" x 11⅞" x 5/16" and 15⅞" x 15⅞" x 5/16". Cartoned 25 to a box.

FACE GRADE—SELECT—Fir veneers selected for pleasing grain and absence of flaws. Only inconspicuous shim patches permitted. No knots, burls or other wood growths permitted.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
Special	Select	D	C	Fully Waterproof Exterior[1] or Water Resistant Interior

Width[3]	Length[2]	Thicknesses	Number of Plys	Approx. Wt. lbs. per M ft.
48"	96"	5/16"	3	950
		7/16"	3	1300
		5/16"	5	1675
		11/16"	5	2000
		13/16"	5	2375

NOTES: [1] Available at slight extra cost.
[2] Lengths up to 12 feet subject to special quotation.
[3] Available in squares 11⅞" x 11⅞" x 5/16" and 15⅞" x 15⅞" x 5/16".



HOW TO SPECIFY— Simpson Fir Plyweave Plywood, No. of pieces, thickness, width, length, interior or exterior.

HOW TO SPECIFY— Simpson Striated Fir Plywood, No. of pieces, thickness, width, length, interior or exterior.





FIR PLYWEAVE and STRIATED FIR

PLYWOOD

METHOD OF MANUFACTURE—Simpson Fir Plyweave and Striated Fir are made by embossing the surface of select figured grain fir veneer under intense heat and pressure.

HARDNESS—The embossing compresses the fibers, giving the wood a tough, hard and durable splinter-free surface.

NAILING—The embossed surface pattern repeats every 8" making it easy to locate studs set on 16" or 24" centers. Countersunk nails are hidden in the attractive pattern.

FINISHING—The raised embossed pattern makes it especially well-suited to a variety of two-tone paint finishes.

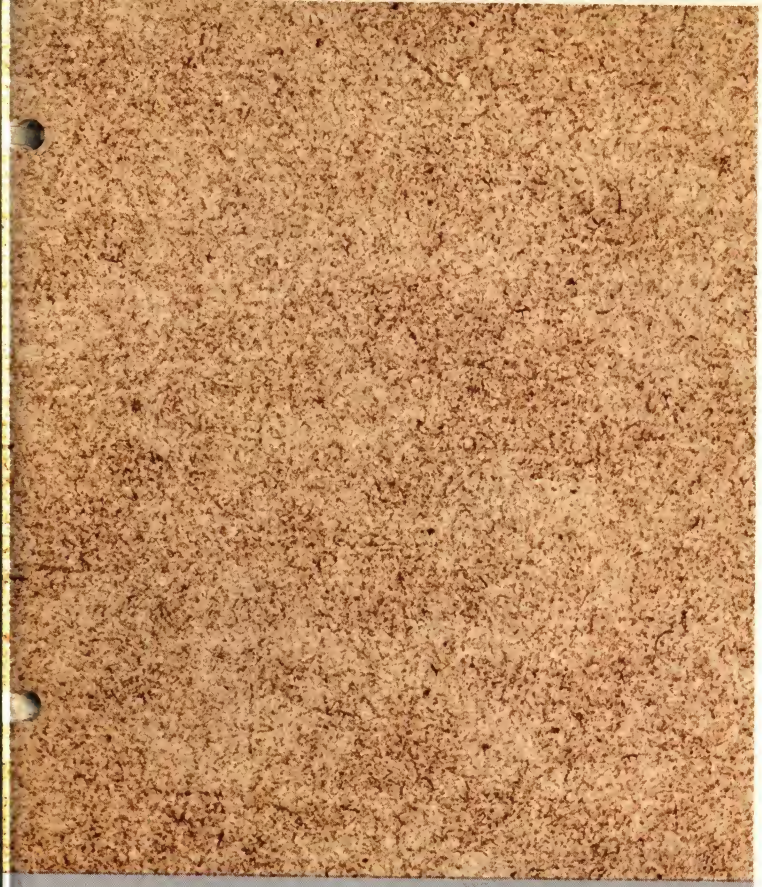
DECORATIVE SQUARES—Fir Plyweave and Striated Fir are available in squares 11⅞" x 11⅞" x 5/16" and 15⅞" x 15⅞" x 5/16". Cartoned 25 to a box.

FACE GRADE—SELECT—Highest quality veneer, free from knots, open splits, pitch pockets and other open defects. May be of more than one piece, but must be well joined. Neatly made repairs permitted.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
Special	Select	B	B	Fully Waterproof Exterior[1] or Water Resistant Interior

Width[3]	Length[2]	Thick-nesses	Number of Plys	Approx. Wt. lbs. per M ft.
48"	96"	¼"	3	790
		⅜"	3	1125
		½"	5	1525
		⅝"	5	1825
		¾"	5	2225

NOTES: [1] Available at slight extra cost.
[2] Lengths up to 12 feet subject to special quotation.
[3] Available in squares 11⅞" x 11⅞" x 3/16" and 15⅞" x 15⅞" x 3/16", 25 to a box.



HOW TO SPECIFY— Simpson Plyron, No. of pieces, thickness, width, length, interior or exterior, standard or tempered.

HOW TO SPECIFY— Simpson Texture One-Eleven Plywood, No. of pieces, thickness, width, length, grade.



PLYRON
PLYWOOD

METHOD OF MANUFACTURE—Simpson Plyron is available as an interior or exterior-type panel. It is made by bonding standard or tempered hardboard to Douglas Fir plywood.

STRENGTH—Plyron combines the rigidity, trueness and surface toughness of hardboard plus the high strength and dimensional stability of Douglas Fir plywood.

SURFACE FEATURES—The face is uniform, smooth, hard and puncture-proof, workable with standard woodworking tools. It can be finished by brushing, spraying or dipping.

FACE GRADE—Hardboards used for faces on Plyron conform to the standards of the producer and also meet the hardness and performance standards specified by the Douglas Fir Plywood industry. Standard board is available in light or dark brown color. Tempered board is available only in dark brown.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
Tempered Standard	Tempered Standard	Tempered Standard	Solid cross band next to faces	Fully Waterproof Exterior[1] or Water Resistant Interior
Width	**Length**	**Thick-nesses**	**Number of Plys**	**Approx. Wt. lbs. per M ft.**
48″	96″	½″	5	2125
		⅝″	5	2425
		¾″	7	2825

NOTES: [1] Tempered only.

Simpson

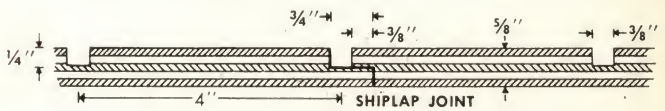
TEXTURE 1-11
PLYWOOD

METHOD OF MANUFACTURE—Texture One-Eleven is an exterior-type Douglas Fir plywood bonded with a 100% waterproof glue line. It is manufactured in panels 48⅜″ wide with grooves 4″ apart (on centers). Grooves are ⅜″ wide by ¼″ deep and edges are rabbeted to provide hidden joints. Meets FHA requirements for exterior walls without sheathing.

SURFACE FEATURES—The surface of Texture One-Eleven is unsanded (rough) for pleasing texture, free from patches or tape. All plys are of Grade C veneer.

FINISHING—For outdoor use Texture One-Eleven should be stained with a highly pigmented exterior stain. Clear finishes or penetrating, low-pigment stains are not recommended.

FACE GRADE—GRADE C—Selected face veneers permit tight knots up to 1½″; knotholes up to 1″; splits up to ⅛″. Faces are free from patches or tape.



Panel Grade	Face Grades[1]	Back Grades	Inner Ply Grades	Glue Bond
C - C	C	C	C	Fully Waterproof Exterior
Width	**Length**	**Thick-nesses**	**Number of Plys**	**Approx. Wt. lbs. per M ft.**
48⅜″	72″-84″ 96″ 108″ 120″	⅝″	5	1825

NOTE: [1] Special face grades available on special quotation.

SAVE 30%+ ON CONCRETE FORMS

CUTS CONCRETE FINISHING COSTS—The tough, hard overlay lets concrete set up "glassy-smooth" except for fins and tiebolt holes. There are no grain or surface irregularities to mottle the finish of the concrete. Ceilings and walls can be painted direct after a minimum of rubbing (to remove "fins," etc.)—and no need for expensive stucco or plaster.

GIVES MANY MORE REUSES—The rugged surface of Simpson High Density Overlaid Plywood has an abrasion resistance 33 times that of conventional plywood when wet. It stands up under continuous scouring action by harsh aggregates, yielding "glassy-smooth" surfaces—pour after pour. Reuses range from 75 on job-site to 200 in yard operations.

STRIPS CLEANLY AND QUICKLY—Heavy scraping is eliminated—wipe down with brush or rag and it's ready to use again. A very light oiling is required to assure easy parting. Large sections of forming can be stripped, hoisted, and secured for another pour with far less time loss and trouble. Even unskilled workers are enabled to do a better job in less time.

CUTS FORM MAINTENANCE—Simpson High Density Overlaid Plywood cleans easily and dries rapidly. Sheets can be stacked without dividers immediately after dismantling forms. This time-saving advantage is due to the plywood's exceptional water-repelling characteristic (25 to 30 times less permeability than ordinary plywood).

BLACK

HOW TO SPECIFY — Specify Simpson High Density Overlaid Plywood (Concrete Form or General Use), number of pieces; width, length and thickness; and weight of overlay. Freight Classification is "Plywood, faced with paper."

MANY USES • Industrial Tanks and Vats • Shipping Crates Boxcars • Work Table-tops • Shelving • Boat Construction Pallets • Flooring • Cold Storage or Drying Rooms • Laundry Chutes • Signs (available in black for application of reflectors and cut to size for traffic control signs).

NATURAL



Simpson

HIGH DENSITY

OVERLAID PLYWOOD

METHOD OF MANUFACTURE—Simpson High Density Overlaid Plywood is a rugged exterior-type fir plywood ideally suited for concrete form work and other applications where strength, smooth surface and workability are required. The Douglas Fir plywood is overlaid with Kimpreg*, a cellulose fiber impregnated with a thermosetting phenol-formaldehyde resin that is 25 to 30 times more resistant to water absorption than ordinary plywood. Surface is translucent, allowing the grain pattern to show through. The durable Kimpreg overlay is bonded to the face veneers under heat and pressure—creating an armored surface of unusual toughness and smoothness. Meets all requirements of Commercial Standard CS45-55.

SIZES AND WEIGHTS—Simpson High Density Overlaid Plywood comes in 48" x 96" panels. Also available in 60" width and 108" or 120" length (unscarfed) on special order. Standard thicknesses are 5/8" and 3/4" for concrete forms. Comes in 5/16", 3/8", 1/2" and 1" thickness for other applications. Natural or black.

The standard overlay—designated 60/60—weighs 60 pounds per 1000 sq. ft. *per side;* the overlay may be ordered in heavier weights (see chart below) or overlaid one side only. Total weight is the base weight of the listed plywood *plus* the weight of the overlay.

*Reg. Trade Mark KIMBERLY CLARK CORP.

Type	Face Grade	Back Grade	Inner Ply Grade	Glue Bond
Overlaid 1 Side	B	B	B	Water Proof Exterior
Overlaid 2 Sides	B	B	B	

Width	Length	Thicknesses	Number of Plys	Approx. Wt. per M Ft. 60/60	60/0
		5/16"	3	1070	1010
48"	96"	3/8"	3	1245	1185
60"	108"	1/2"	5	1645	1585
	120"	5/8"	5	1945	1885
		3/4"	5	2345	2285
		1"	7	3120	3060

NOTES: 1. Specify "Concrete Form" for special cure and edge sealer.
2. A Grade faces on special order.
3. Also available in 90/90 and 120/120 weights. Surface in natural color unless black is specified.

For complete information on overlaid plywood for concrete forms, please refer to DFPA catalog $\frac{5b}{Do}$ Sweet's Architectural File or $\frac{2b}{Do}$ Sweet's Light Construction File.

SAVE 30%+ ON LABOR

Handy 4′ x 8′ overlaid plywood panels go up quick n' easy with fewer nails, less cutting, less waste, less bracing and blocking. Nail to studs without sheathing in many areas. Overlaid lap-siding in 12″, 16″ and 24″ widths installs rapidly, butts precisely, nails up without splitting and requires far fewer man hours to apply.

SIDING APPLICATION: Use corrosion-resistant casing or common nails. For siding ⅜″ to ½″ thick use 6d nails. On thicker panels use 8d. Nail vertical joints 4″ o.c. and intermediate studs at 6″ to 8″. Stagger all vertical joints for lapped siding. When lapping pre-cut panels, back all joints solidly with wedges. Leave 1/32″ between panels. Caulk all joints.

SAVE 30%+ ON PAINTING

The unique velvety surface of CreZon overlay eliminates sanding, face sealing and patching work. Paint goes on easier, covers more area per gallon in far less time. Two coats of paint do the job of three and lasts years longer without repainting. The rugged overlaid surface is weatherproof and resists checking, blistering and grain rise.

HOW TO FINISH: Finish in the same manner as regular fir plywood. For outdoor exposure the best results are obtained with two coats of exterior house paint or enamel. For interior finishing, a minimum of two coats is recommended.

HOW TO SPECIFY – Specify Simpson Medium Density Overlaid Plywood, the number of pieces, width, length and thickness; state if to be overlaid on one or both sides. Freight classification is "Plywood, faced with paper."

MANY USES • Home construction • Interior paneling Counter displays • Garage doors • Portable sheds • Trailers Signs (cut to size for traffic control signs) • Store fixtures Table tops • Commercial structures • Furniture & trunks.



Simpson

MEDIUM DENSITY

OVERLAID PLYWOOD

METHOD OF MANUFACTURE—Simpson Medium Density Overlaid Plywood is a durable exterior-type fir plywood tailor made for siding, garage doors and other applications where strength, paintability and workability are required. The Douglas Fir plywood is overlaid with CreZon*, a cellulose-fiber sheet impregnated with a thermosetting phenolic resin that is completely weatherproof and resists checking and grain rise. The buff colored overlay creates an opaque surface, virtually blanking out the grain pattern. The CreZon overlay is bonded to the face veneers under heat and pressure – creating an armored surface of unusual toughness and permanence. Meets all requirements of Commercial Standard CS45-55.

GRADE – Face veneers under the overlay are B Grade. All other plys are C Grade (with minor core voids) or B Grade on special order. An exterior waterproof glue line is used throughout the sturdy plywood panels to conform with EXT-DFPA specifications.

SIZES AND WEIGHTS—Simpson Medium Density Overlaid Plywood comes in 48″ x 96″ panels. Special 12″, 16″, 24″, 30″ and 60″ widths and 108″ and 120″ lengths (unscarfed) on order. Standard thicknesses are 5/16″, ⅜″, ½″, ⅝″ and ¾″. The CreZon overlay weighs 70 pounds per 1,000 square feet *per side*. Overlay may be ordered on both sides or one side only. Total weight is the base weight of the plywood *plus* the weight of the overlay.

*Reg. Trade Mark Crown Zellerbach Corp.

Type	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
Overlaid 1 side	B	B	C*	Water Proof Exterior
Overlaid 2 sides	B	C*	C*	

Width	Length	Thicknesses	Number of Plys	Approx. Wt. per M Ft. Overlaid One Side	Overlaid Two Sides
12″		5/16″	3	1020	1090
16″	96″	⅜″	3	1195	1265
24″	108″	½″	5	1595	1665
30″	120″	⅝″	5	1895	1965
48″		¾″	5	2295	2365
60″					

*B Grade inner plys available on order.



NATURAL

HOW TO SPECIFY—Simpson Ribbon Grain Philippine Mahogany Plywood, No. of pieces, thickness, width, length, grade, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show. Available only in 48″ widths.



PLANKED



Simpson

RIBBON GRAIN PHILIPPINE

MAHOGANY

PLYWOOD

METHOD OF MANUFACTURE—Simpson Ribbon Grain Philippine Mahogany is made by bonding the finest hardwood face veneers to inner plys of Douglas Fir.

STRENGTH—Face veneer is of choice hardwood. The remainder of the panel is strong, tough, thrifty Douglas fir. This economy of construction, together with strength of plywood cross-lamination, makes Simpson hardwood plywood an ideal building material (pound for pound stronger than steel).

FINISHING—Philippine Mahogany may be stained, bleached, or finished in its natural color. See Simpson's Manual on Finishing Plywood for ideas on finishing all Simpson plywoods.

FACE GRADE—GRADE A—The face shall be made up of tight, smoothly cut veneer containing the natural character markings inherent in the species; if made of more than one piece, the veneer shall be matched at the joints to avoid sharp contrasts in color and grain.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades[3]	Glue Bond
A - A A - 2 A - 3	A A A	A 2[1] 3[2]	Solid cross band next to faces	Water Resistant Interior

Width[4]	Length[4]	Thicknesses[4]	Number of Plys	Approx. Wt. lbs. per M ft.
48″	96″	¼″	3	830
		⅜″	5	1180
		½″	5	1600
		⅝″	7	1915
		¾″	7	2335

NOTES: [1] Back veneers are ribbon or figured grain Philippine Mahogany at mill option.

[2] Back veneers are Philippine Mahogany, birch or fir at mill option.

[3] Mahogany or fir at mill option.

[4] Other widths, lengths, and thicknesses available on quotation.



This choice imported hardwood is both functional and appealing.

Simpson

FIGURED GRAIN PHILIPPINE

MAHOGANY

PLYWOOD

METHOD OF MANUFACTURE—Simpson Figured Grain Philippine Mahogany is made by bonding Grade A rotary-cut Mahogany veneers to inner plys of Douglas Fir or Mahogany at mill option.

STRENGTH—Simpson Figured Grain Mahogany combines the inherent sturdiness of Mahogany with the added strength derived from crossbanding the inner plys. This process imparts a strength, rigidity, and bendability not found in nature (pound for pound stronger than steel).

FINISHING—Philippine Mahogany may be stained, bleached, or finished in its natural color. See Simpson's Manual on Finishing Plywood for ideas on finishing all Simpson Plywoods.

FLEXIBILITY—Simpson hardwood plywoods are well adapted for bending and shaping to meet curved design requirements. ¼" thickness can bend to approximately a 15" minimum radius bending across the surface grain and 24" parallel to the grain.

FACE GRADE—GRADE A—The face shall be made up of tight, smoothly cut veneer containing the natural character markings inherent in the species; if made of more than one piece, the veneer shall be matched at the joints to avoid sharp contrasts in color and grain.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
A-3 or better	A	3 or better	C	Water Resistant Interior
Width[1]	Length[1]	Thicknesses[1]	Number of Plys	Approx. Wt. lbs. per M ft.
48"	96"	¼"	3	830
		¾"	7	2335

NOTE: [1] Other widths, lengths and thicknesses available on quotation.

NATURAL

HOW TO SPECIFY—Simpson Figured Grain Philippine Mahogany Plywood, No. of pieces, thickness, width, length, grade, natural or planked.
PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show. Available only in 48" widths.

PLANKED



NATURAL

HOW TO SPECIFY– Simpson Birch Plywood, No. of pieces, thickness, width, length, interior or exterior, grade, natural or planked.

PLANKED with toasted V-grooves embossed at intervals of 5, 11, 7, 9, 10 and 6 inches across the width of each panel. Every second groove falls 16 inches o.c. to serve as built-in stud locators for nailing. And because the edges of these panels are beveled, joints don't show. Available only in 48″ widths.



PLANKE



Pleasing grain pattern gives warmth and dignity.

Simpson

BIRCH

PLYWOOD

METHOD OF MANUFACTURE—Simpson Birch is made by bonding matched veneers of Grade A rotary-cut birch to Douglas Fir inner plys.

STRENGTH—Face veneers are of choice Birch. The remainder of the panel is strong, tough, thrifty Douglas Fir. This economy of construction, together with plywood's strength of cross-lamination, makes Simpson Birch plywood an ideal building material (pound for pound stronger than steel).

FINISHING—Simpson Birch Plywood is one of the finest woods known for painting, staining or finishing natural. The smooth, hard surface shows no grain rise, requires little maintenance after finishing.

FACE GRADE—GRADE A—Each face shall be made up of tight, smoothly-cut veneer, unselected for uniformity of color, but if made of more than one piece, matched at the joints for pleasing effect. Knots other than pin knots, worm holes, splits and shake shall not be admitted.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades[3]	Glue Bond
A - A A - 2 A - 3	A A A	A 2 3	Solid cross band next to faces	Fully Waterproof Exterior[2] or Water Resistant Interior

Width[1]	Length[1]	Thicknesses[1]	Number of Plys	Approx. Wt. lbs. per M ft.
48″	72″ 84″ 96″	¼″	3	830
		⅜″	5	1180
		½″	5	1600
		¾″	7	2335

Counterfronts — widths 72″ to 144″ — Lengths 22″ to 48″

NOTES: [1] Other widths, lengths and thicknesses available on quotation.
[2] Available at slight extra cost.
[3] Other inner plys are selected C Grade.



Half Round Oak blends with either traditional or modern furnishing.

HOW TO SPECIFY—Simpson Red Oak Plywood, Half Round or Rotary Cut, No. of pieces, thickness, width, length, grade.

RED OAK

PLYWOOD

METHOD OF MANUFACTURE—Simpson (Half Round) or (Rotary Cut) Oak plywoods are made by bonding matched veneers of smooth half round or rotary cut Red Oak to Douglas Fir inner plys.

STRENGTH—Face veneer is of Oak. The remainder of the panel is strong, tough, thrifty Douglas Fir. This economy of construction, together with strength of plywood cross-lamination, makes Simpson Oak plywood an ideal building material (pound for pound stronger than steel).

FINISHING—The open grain of Oak lends it to a variety of finishing techniques by using colored fillers with contrasting stains. See Simpson's Manual on Finishing Plywood for ideas on finishing all Simpson plywoods.

BLOCK-MATCHED—Squares can be cut from Simpson Red Oak and applied at right angles over a 5/16 inch Simpson Douglas Fir plywood underlay (Plyscord grade).

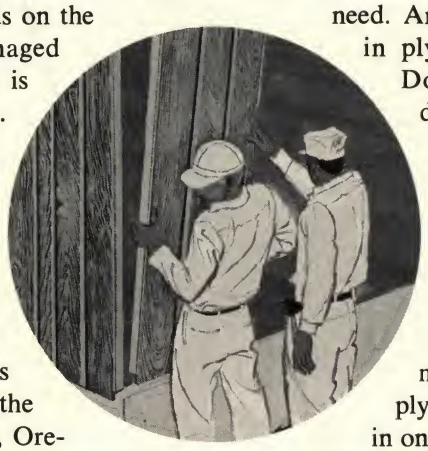
FACE GRADE—GRADE A—The face shall be made up of tight, smoothly cut veneer containing the natural character markings inherent in the species; if made of more than one piece, the veneer shall be matched at the joints to avoid sharp contrasts in color and grain.

Panel Grade	Face Grades	Back Grades	Inner Ply Grades	Glue Bond
A-A A-2 A-3	A A A	A 2 3	Solid cross band next to faces	Water Resistant Interior

Width	Length	Thicknesses	Number of Plys	Approx. Wt. lbs. per M ft.
48"	72" 84" 96"	1/4"	3	830
		3/8"	5	1180
		1/2"	5	1600
		3/4"	7	2335

PIONEER IN THE PROGRESS OF PLYWOOD

Simpson was established in 1895 and has since grown to become one of the largest suppliers of plywood and wood products in America. Nearly a half-million acres of forest lands on the West Coast are scientifically managed by Simpson and the timber crop is harvested on a rotating basis... assuring ample timber supplies for the use of future generations. Simpson processes the timber in twenty-two Western plants and distributes the finished products through wholesalers and dealers throughout America and Canada. The first cross-laminated panels using Douglas Fir were made in the Simpson veneer plant in Portland, Oregon, in 1905. From then until now, Simpson has pioneered in manufacturing the finest in wood products and plywood for the building, remodeling and industrial fields.



As one of the largest plywood producers in America, Simpson has continued to develop better ways to manufacture better plywood for every need. An example of Simpson leadership in plywood processing are "Jumbo" Douglas Fir plywood panels in dimensions of 8′ x 12′. These giant panels are manufactured by Simpson on a press capable of handling nine panels at a time. Simpson can also furnish plywood up to eight full inches thick and made with an Exterior glue! Simpson is the only plywood manufacturer equipped to make plywood panels of such dimensions in one-piece construction. You can rely on Simpson for the finest in plywood and wood products...and you can rely on Simpson to develop and supply the wood products you need, when you want them.

FOR FURTHER INFORMATION, CONTACT THE FIELD OFFICE NEAREST YOU:

Chicago 6, Illinois
728 Daily News Building
RAndolph 6-5894

Cleveland 16, Ohio
20800 Center Ridge Road
EDison 3-1833

Dallas 6, Texas
513 Meadows Building
EMerson 8-4611

Denver 6, Colorado
P. O. Box 96, Capitol Hill Station
DUdley 8-4025

Los Angeles 5, California
3440 Wilshire Boulevard, Suite 1006
DUnkirk 8-0655

Memphis 11, Tennessee
3387 Poplar Avenue, Room 212
FAirfax 7-7384

Portland 17, Oregon
2301 North Columbia Boulevard
BUtler 9-1112

Minneapolis 2, Minnesota
1117 Foshay Tower
FEderal 3-0488

New York 36, New York
500 Fifth Avenue, Suite 1402
WIsconsin 7-4094

Seattle 1, Washington
1010 White Building
MUtual 2-2828

RELY ON Simpson QUALITY SINCE 1895

SIMPSON LOGGING COMPANY

Sales Office, Plywood & Door Products, 2301 N. Columbia Blvd., Portland 17, Oregon

The finest in Douglas Fir, Western Hemlock and Redwood Lumber; Acoustical, Insulating and Hardboard Products; Plywood and Doors; Wood Tanks and Pipe.

SPDMP-96/1741

Lithographed in U.S.A. on Simpson Coated Offset (C2S) Substance 80

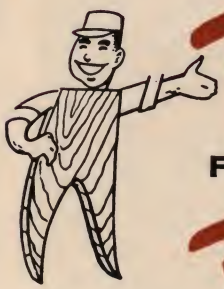
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Sp



Custom Built

ARCHITECTURAL HARDWOOD PLYWOODS

AND



Penwood

PRE-FINISHED

Pen-Plank®

V-GROOVED PLYWOOD PANELS

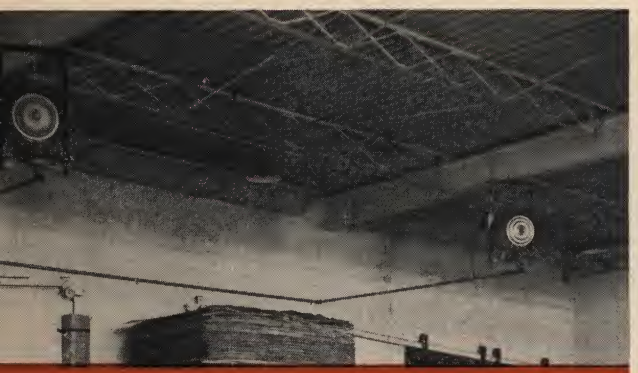


FROM FOREST LANDS TO FINAL PRODUCTS

SPLICEDWOOD CORPORATION • ASHLAND, WIS.
EXECUTIVE OFFICES • MELLEN, WIS.

PENOKEE VENEER COMPANY • MELLEN, WIS.

Penwood PLYWOODS



WHY PENWOOD PLYWOODS ARE SUPERIOR . . .

- **MOISTURE CONTROL AT EVERY STAGE OF MANUFACTURE**

Equilibrium of plywood is assured by the installation of humidifiers throughout the plant. All components of each piece of plywood conditioned to the same moisture content, Splicedwood has been consistently producing panels which are in "perfect equilibrium", thereby eliminating much of the possibility of warpage.

- **METHODS OF CUTTING VENEER**

Four methods of cutting are used to produce veneer. Plain and Quartered sliced veneer are produced on our 17 foot slicer. Half round and full rotary cut veneers are produced on our 54", 76", 110" and 132" lathes.

- **METHODS OF PRESSING AT SPLICEDWOOD**

Both the hot and cold method of pressing is used in the manufacture of PENWOOD Plywood.

Our modern Williams-White Hot Plate Press produces panels in maximum sizes of 52"x124" and is used in the manufacture of most architectural grade plywood except where otherwise specified. Larger size panels are also available on order.

Our specially designed cold press produces panels in sizes up to 48"x96".

CUSTOM MADE

TO MEET EXACTING SPECIFICATIONS

Experienced craftsmen using a great variety of naturally beautiful hardwood species and figure types and the special matching effect will custom build plywood to achieve the appearance desired by the architect. A featured Penwood service is architecturally matched plywood on our large 52"x124" hot press.

TYPICAL INSTALLATION



First Methodist Church, St. Cloud, Minn.
L. C. Pinault, Architect. The Donlin Co., Millwork,
St. Cloud. Conlin Construction, Contractor.

WIDE SELECTION FLITCH SAMPLES FURNISHED ON REQUEST

Rotary Ash	Rotary Red Oak
Rotary Natural Birch	Rotary Cut Walnut
Rotary Select Red Birch	Sliced Ash
Rotary Select White Birch	Sliced Natural Birch
Rotary Elm	Sliced Select Red Birch
Rotary Cut Mahogany	Sliced Select White Birch
Rotary Natural Maple	Sliced Elm
Rotary White Maple	Sliced Natural Maple
Sliced White Maple	Quartered Mahogany
Sliced Red and White Oak	Quartered Sliced Walnut
Plain Sliced Walnut	Prima Vera
Comb Grain Red Oak	Avodira
Comb Grain White Oak	Limba
Rift Red Oak	Flat Cut Cherry
Rift White Oak	Flat Cut Mahogany
Quartered Sliced Birch	Flat Cut Teak

Penwood **CUSTOM MADE DOORS—Penwood** flush doors are custom made to your specifications and meet all requirements of Commercial Standards SC 171-50 on Hardwood Veneered Doors. **Penwood** doors are furnished to match all **Penwood** hardwood plywood panels if so specified.

PRE-FINISHED PANELING



PRE-FINISHED

Pen-Plank®

V-GROOVED PANELS

Penwood pre-finished PEN-PLANK panels have a beautiful penetrating finish and sealed-in protection with a top coat that is buffed, which gives a soft, lustrous smooth surface assuring elegance with lasting livability. The back of each panel is sealed for added protection against moisture and warping.

Pen-Plank face veneers are carefully selected in random widths and V-grooved for a true plank effect. Pre-finished Pen-Plank offers natural beauty in various wood species—a warm livable beauty you will enjoy forever.

HIGH IN QUALITY — LOW IN COST

easy to apply

All Pen-Plank panels are precision cut to form flush butt joints. If furring strips are true, panels will fit accurately around the room. Panels are easily installed by anyone, using standard methods of application for any type plywood wall paneling.

YOU HAVE A CHOICE OF THESE BEAUTIFUL WOODS

LINDA ELM	CENTURY OAK
TANGO WALNUT	PLAZA BIRCH
ORCHARD ELM	MEADOW ASH
PANDA WALNUT	COLONIAL CHERRY

A choice of various wood species—to meet varying requirements and personal taste—in homes, offices, stores, beauty shops—everywhere. Truly an outstanding pre-finished panel to work decorative magic.

Retains its natural beauty forever

SIZES

Available in ¼ inch thickness in 4′ x 7′, 4′ x 8′, 4′ x 9′ and 4′ x 10′ panels.

hpi — CERTIFIED AMERICAN QUALITY — HARDWOOD PLYWOOD INSTITUTE

Always specify certified American quality plywoods. It's your assurance of finest quality craftsmanship. Insist on plywood bearing this seal of quality. The Penwood name on plywood is your assurance of finest quality.



Office building Penokee Veneer Co. and Splicedwood Corporation, Mellen, Wis.



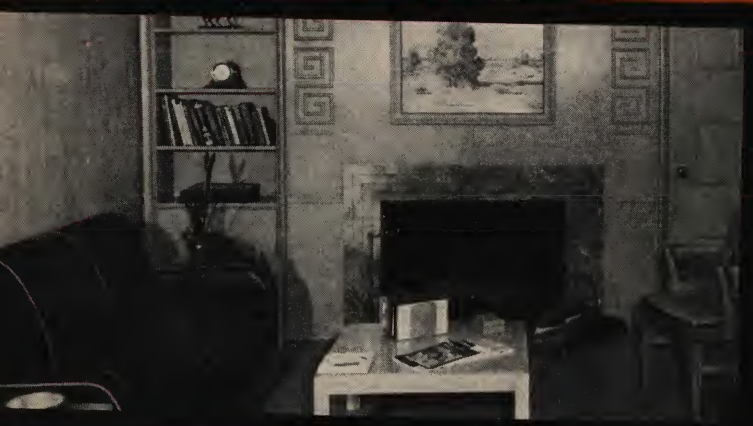
The modern and efficient plant of the Splicedwood Corporation at Ashland, Wis.

One of the beautiful paneled offices in our headquarters building in Mellen.



Penokee Veneer Company plant at Mellen, Wis.

Another interior view of ou office building in Mellen.





SUGGESTED ARCHITECTURAL SPECIFICATIONS:

Install Penwood Architectural panels (or, _____ Penwood prefinished PEN-PLANK panels) as indicated on plans and as manufactured by Splicedwood Corporation, Mellen, Wisconsin. Dimensions to be as follows: thickness _____, ¼" for PEN-PLANK), width _____, length _____. Species of wood to be _____. Construction to be as follows: _____ plies, core (lumber or veneer). Surface shall be (sanded or unsanded, or in the case of PEN-PLANK, V-grooved in random widths, prefinished, buffed and with back sealed). Adhesive used shall be (type 1, or type 2)*. Installation shall follow the instructions and recommendations of manufacturer.

* type 1—highly waterproof
type 2—water resistant

PERSONAL SALES REPRESENTATIVES . . . TO ASSIST YOU

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Architectural & Industrial Hardwood Plywoods
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MICHIGAN, Grand Rapids
Burt Hathaway
1330 Ballard S. East

NEW YORK, Jamestown
Clayton A. Rugg
Clayton A. Rugg Veneers
24 Winsor Street
Phone: 3831

NEW YORK, Mount Vernon
Jere Stoller
9 West Prospect Ave.

NEW YORK, New York
Phil Carver
American Wood Products Sales Co.
Box 104, Bayside 61,
Phone: Bayside 5-5300

OHIO, University Heights
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c/o Tulsa Hotel
Phone: Cherry 2-4301

WISCONSIN, Mellen
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SPLICEDWOOD CORPORATION
ASHLAND, WISCONSIN
EXECUTIVE OFFICES MELLEN, WISCONSIN

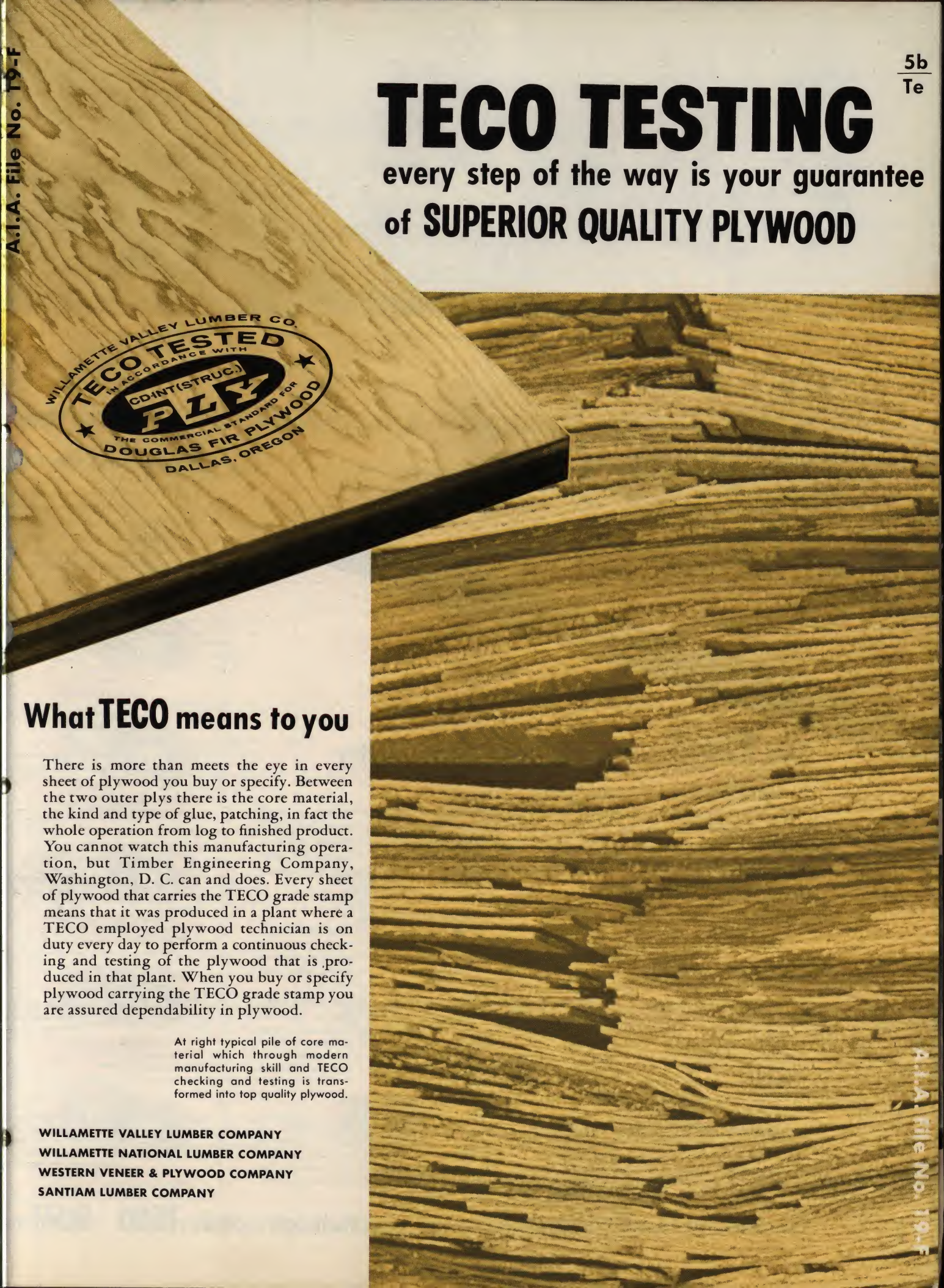
PENOKEE VENEER COMPANY
MELLEN, WISCONSIN

Printed in U. S. A.

A.I.A. File No. 19-F

TECO TESTING

every step of the way is your guarantee of SUPERIOR QUALITY PLYWOOD



What TECO means to you

There is more than meets the eye in every sheet of plywood you buy or specify. Between the two outer plys there is the core material, the kind and type of glue, patching, in fact the whole operation from log to finished product. You cannot watch this manufacturing operation, but Timber Engineering Company, Washington, D. C. can and does. Every sheet of plywood that carries the TECO grade stamp means that it was produced in a plant where a TECO employed plywood technician is on duty every day to perform a continuous checking and testing of the plywood that is produced in that plant. When you buy or specify plywood carrying the TECO grade stamp you are assured dependability in plywood.

At right typical pile of core material which through modern manufacturing skill and TECO checking and testing is transformed into top quality plywood.

WILLAMETTE VALLEY LUMBER COMPANY
WILLAMETTE NATIONAL LUMBER COMPANY
WESTERN VENEER & PLYWOOD COMPANY
SANTIAM LUMBER COMPANY

A.I.A. File No. 19-F



Inspecting veneer



Glue inspection



Checking production line samples



Weighing and drying test panels



Why **TECO** guarantees you superior quality

1. MORE RIGID QUALITY CONTROL

To assure the ultimate in quality control, TECO maintains a resident technologist at each mill using the "TECO-Tested" stamps. The technicians are supervised by a qualified TECO staff member residing in the area. Daily tests are maintained of raw materials and production samples to assure continuous, uniform quality, as specified by "Commercial Standards". Standard testing equipment and skilled technical personnel combine to produce your best buy in plywood panels.

2. TOUGH GLUE LINE TESTING

Our TECO-Tested interior grade plywood glue line samples are dried at maximum temperature (100° F.) specified in "Commercial Standards." This assures uniformly high glue line strength at no extra cost.

3. TECO-DIRECTED QUALITY CONTROL

Completed plywood panels whether sanded or unsanded are checked and tested by TECO-trained personnel for quality specifications determined by TECO laboratory tests complying with U. S. Department of Commerce Commercial Standards. Each panel is examined before the TECO stamp is affixed.

4. ASSURANCE OF STANDARD QUALITY

TECO quality control and testing standards result in continuous product uniformity for all production schedules day after day. You get the quality, the requirements you need—every time.

5. DEPENDABILITY

The TECO stamp is backed by more than a quarter century's experience in applied research, testing and evaluating procedures for outstanding manufacturers, users, and their suppliers in the wood industry.

6. AVAILABLE IN ALL STANDARD GRADES

Grades carrying the TECO-tested mark will be equivalent or superior to those certified by other plywood testing agencies. They will conform to Commercial Standards for Douglas fir plywood and Western softwood plywood.

7. MEETS FHA STANDARDS

TECO is an FHA-accredited independent testing agency, and the word "STRUC" in the TECO grade stamp identifies plywood as FHA structural quality under the new FHA Minimum Property Standards. It assures dependable quality for all load bearing plywood applications.

There are TE

Grades and Descriptis

The TECO grade stamp is yass marked complies with or exis appear on the panel surface or p tion by specific manufacturery stamp, as shown in certain gr b

Panels available in these thes

TECO TESTED CD-INT(STRUC.) PLY DOUGLAS FIR PLYWOOD

Unsanded structu sheathing for walls, ro sub-floors and indus purposes.

TECO TESTED CD-INT(STRUC.) PLY DOUGLAS FIR PLYWOOD

Plugged
Manufacturers Grade

Unsanded underlayn for carpets, linoleum, tile.

TECO TESTED CD-INT(STRUC.) PLY DOUGLAS FIR PLYWOOD

Plugged & Touch Sanded
Manufacturers Grade

Skip sanded for unif thickness, used as un layment.

TECO TESTED CD-INT(STRUC.) PLY DOUGLAS FIR PLYWOOD

Plugged
Floor Panel
Manufacturers Grade

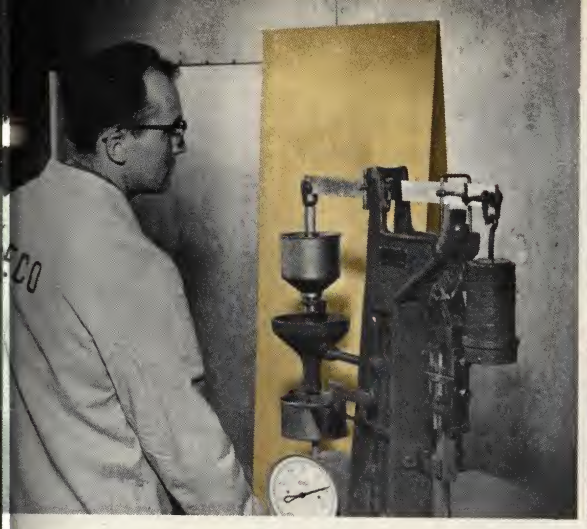
1⅛" thick, used as a c bination subfloor and derlayment.

TECO TESTED CD-INT(STRUC.) PLY DOUGLAS FIR PLYWOOD

X-WP12
Manufacturers Grade

Unsanded structu sheathing for walls and sub-floors. weather protection for months, guaranteed manufacturer.

For consistent quality, routine inspection is not enough . . . the TECO stamp mes



Plywood shear testing



Sawing for checking finished plywood



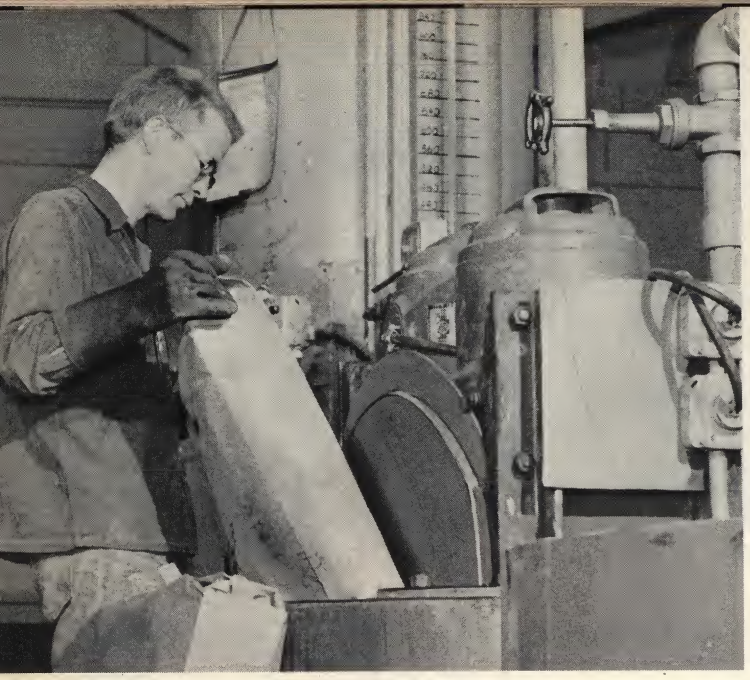
TECO Grade Stamp approval

Certified PLYWOODS to meet a wide range of building uses

urance of consistent quality. All plywood so Commercial Standards. TECO grade stamps nel edges, depending on the grade. Descrip- ppear in a rectangle beneath the TECO tested low.
es: ¼", 5/16", ⅜", ½", ⅝" and ¾".

	TECO TESTED C-C EXT. — Unsanded maximum structural sheathing with waterproof band for exterior uses. (Edge Brand or Back Stamped)	TECO TESTED N-B INT. — Recommended for natural finish one side and sound smooth back for painting. Can be used for cabinet doors and furniture. (Edge Stamped)
TECO TESTED CDINT(STRUC.) PLY — X-WP12 Plugged Manufacturers Grade — Unsanded underlayment for carpets, linoleum and tile. Extra weather protection for 12 months, guaranteed by manufacturer.	TECO TESTED A-A INT. — Sanded both sides for interior use of cabinets, built-ins, and furniture with highest quality surfaces both sides for painting. (Edge Stamped)	TECO TESTED A-A EXT. — Highest quality both sides for exterior use, such as car-ports, fences, boats, and signs. (Edge Brand)
TECO TESTED CDINT(STRUC.) PLY — X-WP12 Plugged & Touch Sanded Manufacturers Grade — Skip sanded for uniform thickness, used for underlayment with extra weather protection for 12 months, guaranteed by manufacturer.	TECO TESTED A-B INT. — Interchangeable with A-A Interior, highest quality face side with solid and smooth back. (Edge Stamped)	TECO TESTED A-B EXT. — Interchangeable with A-A Ext., highest quality face with sound smooth back. (Edge Brand)
TECO TESTED CDINT(STRUC.) PLY — Exterior Glue Manufacturers Grade — Unsanded structural sheathing, with exterior glue for walls, roofs, and sub-floors.	TECO TESTED ADINT(STRUC.) PLY — Excellent; highest quality face for paneling, cabinets, and backing. (Back Stamped)	TECO TESTED A-C EXT. — Excellent quality face, used for exterior soffits, fencing and siding. (Edge Brand or Back Stamped)
TECO TESTED CDINT(STRUC.) PLY — Exterior Glue-Plugged Manufacturers Grade — Unsanded structural sheathing with solid face and exterior glue for walls, roofs, and subfloors.	TECO TESTED BDINT(STRUC.) PLY — Competitive; solid, smooth face for backing and cabinets, also underlayment.	TECO TESTED B-C EXT. — Economy; sound, smooth face for exterior walls and building details. (Edge Brand or Back Stamped)
TECO TESTED CDINT(STRUC.) PLY — Exterior Glue-Plugged & Touch Sanded Manufacturers Grade — Skip sanded, solid face exterior glue for underlayment for carpets, linoleum, or tile.	TECO TESTED BDINT(STRUC.) PLY — Concrete Form Manufacturers Grade — Oiled & green edge sealed . . . is re-usable for concrete forms.	TECO TESTED BB-EXT PLY — Concrete Form Manufacturers Grade — Oiled & red edge sealed for maximum re-use as concrete form. (Back Stamped)

a TECO employed plywood technician is on duty every day in each plant.



The important glue mixing operation is carried on under the supervision of a TECO technician.



In the mill inspection of plywood thickness by a TECO-employed technician



Loading one of 25 cars of daily plywood production at these TECO mills



TECO-employed technicians are rotated from one mill to another every six months

Where to buy TECO TESTED plywood

The Timber Engineering Company has been serving the nation's forest products and construction industries for more than a quarter of a century. But only recently has this well-known, technical, research and engineering firm undertaken a quality control and testing service to insure a superior quality plywood product. For this reason only a few manufacturers have as yet qualified for the TECO grade stamp. We are happy to be among the first to meet TECO's rigid requirements. When you buy or specify you can depend on a consistent quality of plywood when you insist on TECO.

WILLAMETTE VALLEY LUMBER COMPANY
WILLAMETTE NATIONAL LUMBER CO.
Dallas, Oregon, Phone MAyfair 3-2351, TWX 80-U

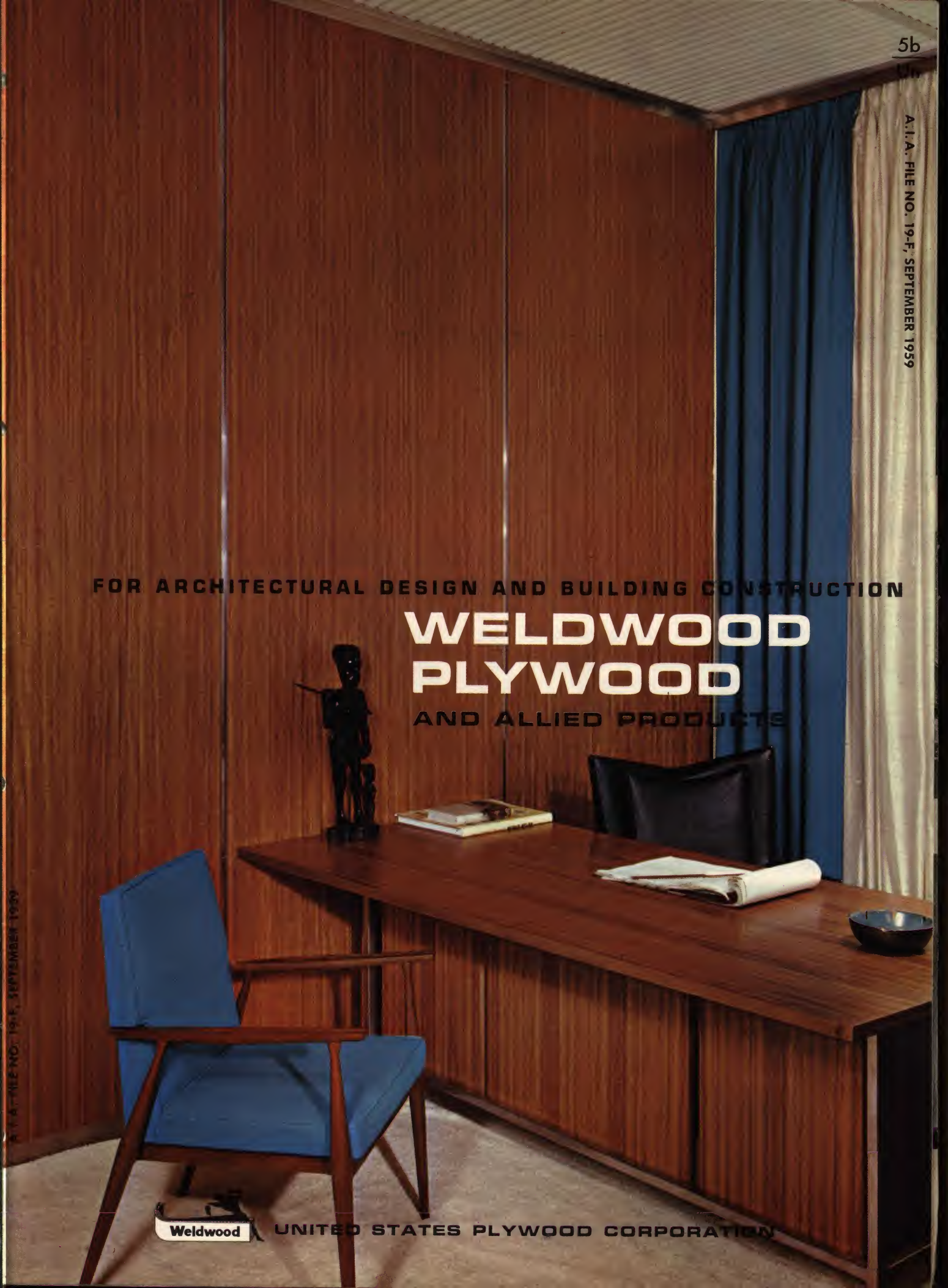
WESTERN VENEER & PLYWOOD COMPANY
Lebanon, Oregon, Phone ALpine 8-3134, TWX 485-U

SANTIAM LUMBER COMPANY
Sweet Home, Oregon, Phone EMpire 7-2121, TWX 315-U

SANTIAM LUMBER CO.
TECO TESTED
IN ACCORDANCE WITH
CD-INT(STRUC.)
PLY
THE COMMERCIAL STANDARD FOR
DOUGLAS FIR PLYWOOD
SWEET HOME, OREGON

Litho U.S.A.

A.I.A. FILE NO. 19-F, SEPTEMBER 1959



FOR ARCHITECTURAL DESIGN AND BUILDING CONSTRUCTION

WELDWOOD PLYWOOD

AND ALLIED PRODUCTS

Weldwood

UNITED STATES PLYWOOD CORPORATION

A.I.A. FILE NO. 19-F, SEPTEMBER 1959



Rosewood paneling in the executive reception lounge of Commercial Credit Corporation, Baltimore, Maryland. Architects, Harrison and Abramovitz; interiors by J. H. Leroy Chambers, A.I.D. of H. Chambers Co., Baltimore. Installation by Knipp & Co.



ALGOMA GRADE WELDWOOD

. . . the finest in decorative hardwood plywood

Wherever architects and building contractors must provide "individual" interiors for any building, whether it be residential, institutional, or commercial, they specify the unequalled, ageless, natural beauty of Algoma Grade Weldwood. This, generally accepted as the finest hardwood paneling, ensures maximum service with minimum maintenance.

Algoma craftsmen—whose skill with wood has become almost legendary—are encouraged to freely select those veneers they prefer for the paneling they manufacture in Weldwood's modern plant at Algoma, Wisconsin. Thus, the finest paneling available anywhere is available from the 'stock' of Weldwood distributing units which are conveniently located in all large trading areas of United States and in Canada.

GUARANTEE

All Weldwood plywood for interior use is guaranteed for the life of the building in which it is installed. The label is your guarantee that the paneling is Algoma Grade Weldwood to satisfy your specification.

SPECIES

The list of desirable woods always available from Weldwood stock includes Birch, Korina®, Maple, American Elm, Walnut, Oak, Cherry, Benge, Honduras Mahogany and African Mahogany. For unusual or special cases, other fine domestic and exotic species may be ordered special.

SIZES, THICKNESSES, CONSTRUCTIONS

Widths: 24″, 30″, 36″, 48″. **Lengths:** 48″, 60″, 72″, 84″, 96″ and up to 144″. **Thicknesses:** with veneer core—⅛″, ¼″, ⅜″, ½″; with lumber core or with Novoply core —¾″. **Counterfront construction:** 120″ and 144″ x 28″, 36″, 42″, 48″. **Core stock:** For cabinetmakers' veneering, Poplar and Basswood core stocks are available. **Fire-resistant panels:** Available on specification. **Short-length panels:** Architects designing around shorter lengths (less than 96″ long) offer their clients substantial economies with same high quality.

PREFINISHED PANELS

Algoma Grade Weldwood paneling may be specified: (1) lacquer finished; (2) custom finished to architect's specifications (including special design and insignia); (3) with the remarkably transparent Evergrain® satin or gloss surfacing.

For other beautiful Weldwood Prefinished and Unfinished Hardwoods, produced in Weldwood's Southern and Western Plants, see pages 4 and 5.

RECOMMENDED SPECIFICATION for ALGOMA GRADE WELDWOOD PLYWOOD

Short Form Specification: Weldwood Plywoods shall be Algoma Grade as manufactured by United States Plywood Corporation.

Long Form Specification: Plywood shall be Algoma Grade, stock panels, as manufactured by United States Plywood Corporation. Faces shall be of one or more pieces of veneer matched for color and grain at the joints to produce continuity of character and balanced design. Faces shall be free of open joints, face depressions, glue stains, or other manufacturing defects. Faces shall be selected for figure, selected for color, or unselected for color, as specified, but shall not contain ruptured grain, doze or shake and shall otherwise equal or exceed the quality requirements of the best grade of that species listed by U. S. Department of Commerce Commercial Standards CS 35-49 or latest revision thereof.

Backs on G1S plywood shall be a species and thickness to balance face veneers and shall be CS 35-49 grade 4 or better.

Plywood shall be sanded both sides and fine belt sanded on the face.

Inner plies shall be sound, with tight joints and thickness required to produce balanced construction in overall thickness as specified.

Glue bond shall be Urea Formaldehyde hot press method unless otherwise specified.

Plywood thickness shall be as specified with tolerance of plus 0″ or minus 1/32″ and trimmed to specified sizes plus or minus 1/32″.



English Brown Oak Algoma Weldwood Paneled walls in the Conference Room, Administration Building of the Robert Moses Power Dam built by the Power Authority of the State of New York near Massena, N. Y. Installation by Freeman-Carder; Engineering by Uhl Hall, and Rich; Consulting Architect, John B. Peterkin.

ARCHITECTURAL GRADE WELDWOOD

. . . for installations demanding the highest architectural standards

There is no better. The only limiting factors are the highest possible woodworking skills and the availability of the most carefully maintained, most modern equipment. Made with exquisitely matched veneers expressly selected for the installations from veneer flitch samples, Architectural Grade Weldwood reflects centuries of development of the woodworking art.

Architectural Grade Weldwood is available custom-made to the specific architectural requirements of the installation, or in ¾" thickness from stock in Figured African Mahogany, Figured Honduras Mahogany, Brazilian Rosewood, Korina, Figured Walnut, Oak, Cherry, Teak, and a multitude of others of the world's finest species.

For custom-design paneling, the complete veneer inventory of United States Plywood Corporation, and of the other fine veneer cutters, is available for your examination and selection. A flitch room of representative samples of veneer is maintained at the Weldwood Building in New York for your convenience, by Weldwood Architectural Service Representatives whose assistance is always available.

Architectural Grade Weldwood can be obtained on fire-resistant wood cores or mineral cores.

Weldwood Doors to match Architectural Grade Weldwood are also furnished on order.

STOCK SIZES, THICKNESSES, CONSTRUCTION

"Stock" panels are furnished in matched sets made from a single veneer flitch. Depending on the length of the veneer flitch, stock 48" wide panels are available 72", 84", 96", 120", 144" and 192" long, and as counter-fronts 144" wide x 28", 36", 42" and 48" long.

RECOMMENDED SPECIFICATION for ARCHITECTURAL GRADE WELDWOOD PLYWOOD

Short Form Specification: Plywood shall be Weldwood Plywood, Architectural Grade, sequence matched, as manufactured by United States Plywood Corporation.

Long Form Specification: Plywood shall be Weldwood Plywood, Architectural Grade as manufactured by United States Plywood Corporation. Unless otherwise specified, plywood shall be 5-ply lumber core construction with an overall thickness of ¾ inches; tolerance: 0" over or 1/32" under. Plywood shall be glued with waterproof phenol formaldehyde resin glue and processed by the hot plate method.

Face veneer shall be from flitches specially selected and approved for architectural adaptation, with respect to cutting lengths, uniformity of color, figure, grain character, or other special requirements.

Faces shall be of one or more pieces of veneer matched for color and grain at the joint to produce balance and continuity of character. Faces shall be selected for figure, selected for color, or unselected for color, as specified, but mineral streaks and discolorations, wormholes, ruptured grain, loose texture, doze or shake shall not be admitted. Pieced veneers shall be parallel clipped, jointed by tapeless splicer and edge glued. In matching sliced or sawn veneers, unless otherwise specified, pieces shall be bookmatched and of corresponding width on each side of the center joint or adjacent panels. Face veneers shall not contain open joints, face depression, glue stain or other manufacturing irregularities. Back veneers on G1S plywood shall be of species to properly balance face.

Panels shall be sanded both sides, and fine belt sanded on the face side to provide suitable surface for finishing.

Cores shall be Novoply, veneer or lumber. Lumber core to consist of Basswood or Poplar strips not to exceed 3½" in width and edge glued under pressure with urea resin glue high frequency cured.

Crossbands shall be 1/16" thick of either Basswood or Poplar unless otherwise specified. Crossbands shall be sound veneer of random widths with edges jointed and glued.

Panels shall be trimmed in width and length to the specified measurement plus or minus 1/32 of an inch unless otherwise specified.

Nutmeg Samara V-Plank, a Weldwood Prefinished Paneling, makes an excellent wall material for any room in the house. Here it forms the walls of a family room.

WELDWOOD PREFINISHED HARDWOOD PANELING

with the one finish that lets the full beauty of the wood show through



No ordinary finish—you can "feel the difference" of the carefully controlled, genuine lacquer finishing by Weldwood. And it resists household chemicals, food, alcohol, water, hand smudges and temperature extremes.

Prefinishing with genuine lacquer is an art, a craft, at the Weldwood factory. Its perfection, the direct result of dedicated craftsmen painstakingly exploring and developing every plausible suggestion to its greatest potential, has produced the famous, fabulous Weldwood Prefinished Panel—the criterion of the industry—you can see and feel the difference. It is the panel with the most uniform and durable surface—the one factory finish that takes impact, abrasion, drastic temperature and moisture changes, and accidental abuse in residential, office, commercial and institutional installations. It is easily wiped clean with a damp, clean cloth or with a mild soap (Ivory) water solution. An infrequent waxing is generally all the care needed. The panels arrive at the job all ready for installation, with no time required for sanding, staining, or touching-up. Groups of 6 closely

matched panels are packaged with instructions for installation and with colored Weldwood Putty Stik for filling and concealing nail holes.

SPECIES

A full line of domestic and exotic woods is available, including Samara, Korina, Mahogany, Oak, Birch, Cherry, Nakora, and Walnut.

PREFINISHED V-PLANK® WELDWOOD

V-Plank paneling is random-width, ceiling-height, planked plywood. Its shallow v-grooves emphasize the tone and figure of the species. Installs quickly. Bevels provide matching v-grooves between butted panels.

Custom-grade V-plank, manufactured from selected flitches, available on order.

Prefinished "Colonial" V-Plank Weldwood features vertical v-grooves of V-Plank with the added effect of occasional horizontal "plank end" grooves and real veneer "pegs".

SPECIES: Honey Korina, Tawny Korina, Philippine Mahogany, Cherry, Nakora, Birch, Charter Birch, Oak, Charter Oak, Charter Walnut, Walnut, Color-Styled Samara and Samara. (Also available unfinished.)

PANEL SIZES: ¼" x 48" x 96", 120".

PLANKWELD®

Weldwood Plankweld is genuine hardwood wall paneling—pre-cut, prefinished and packaged—designed for quick, economical installation over any interior wall. Excellent for remodeling work. Tongue and grooved panels are beveled to form a continuous 'plank' wall. No visible nailing . . . installation is with simple metal clips.

Made of 3-ply ¼" Weldwood plywood in: Birch, Tawny Korina, Philippine Mahogany, Oak, and Walnut. Each panel is 16¼" wide and 8' in length (some woods in 10' lengths). Cartons of 6 panels have complete installation data and metal fastening clips.

SURFWOOD®

The textured, natural beauty of decorator Surfwood (see page 6) is developed to an even greater degree by Weldwood factory finishing which protects the wood against dirt and grime. Waxing keeps the panels like new for years. Decorator-colored Surfwood is further described on page 6, "Textured Woods".

In the George Washington Motel, King of Prussia, Pennsylvania, Provincial or Candlelight Samara V-Plank was used for all guest room walls. Architects: Haag and D'Entremont.



WELDWOOD ACCESSORIES
for perfect paneling installation

Instructions for installing Weldwood Prefinished Paneling are included in each package of panels. Also available on request.

WELDWOOD TRIM AND MOLDINGS

WELDWOOD PREFINISHED HARDWOOD TRIM

8 hardwood trim shapes, precision milled to every basic shape you'll need to complete wall areas. Available factory lacquer-finished in 11 tones that faithfully match all species of Weldwood Prefinished Paneling.

WELDWOOD HARDWOOD TRIM

In your choice of fine hardwoods to match Weldwood paneling, all ready for finishing Weldwood Hardwood Trim shapes can be painted, stained or finished natural. Use Weldwood Trim Stain to match Weldwood Prefinished Paneling.

WELDWOOD MOLDINGS®

Weldwood Moldings: genuine hardwood faced aluminum to match the faces of most popular types of Weldwood. With these moldings, Weldwood paneling can be speedily and economically installed—over 50% of face nailing is eliminated. Furnished in 8' strips for inside corners, outside corners, caps and dividers for ¼" and ¾" plywood.

WELDWOOD FINISHING MATERIALS

FIRZITE® (Clear and white)

Assures smooth, even finishes on fir plywood and other softwoods. Produces beautiful blond and pickled effects on all woods. Makes an excellent stain when tinted with colors-in-oil.

SATINLAC®

Clear wood finish that brings out the natural beauty of all woods. Seals, primes, finishes. Avoids 'built-up' look yet protects thoroughly—resists water, grease and alcohol. Brushes easily—has little odor.

SATINLAC® LIGHTENER

Base coat for *extra light* finish. Prevents wood's darkening by subsequent finish coats.

WELDWOOD® TRIM STAIN

For trim, moldings, and doors. In colors compatible with Weldwood Prefinished Panels.

WELDWOOD PUTTY STIK®

In 18 wood colors. For filling and concealing nail holes, minor dents and imperfections, and poor mitre joints in paneling, trim and woodwork.

WELDWOOD FLEXIBLE WOOD-TRIM(TM)

Easy-to-use rolls of real wood veneers in useful widths. In various species for edging plywood and lumber and for creating decorative effects.

WELDWOOD WAXES

Provide durable, protective finish on paneling, woodwork, furniture, floors (wood, vinyl, cork, linoleum), etc.

Weldwood Paste Wax—For water-resistant, satin-lustre protective finish.

Weldwood Liquid Paste Wax—Easily used cleaner/wax for durable high lustre finish.

WELDWOOD EXTERIOR STAIN

Seals, primes, and finishes for enhancing and preserving all exterior plywood and lumber. Built-in sunlight "screen". Available in the following appropriate outdoor colorings: Redwood, Driftwood Grey, Cascade Green, Sierra Brown.

WELDWOOD WOOD PRESERVATIVE

Toxic water-repellent sealer. Prevents rot, decay, mildew, fungi stains. Retards warping, checking, swelling. Kills termites, carpenter ants, etc.

WELDWOOD TEXTURED PLYWOOD



SEA SWIRL®

Weldwood Sea Swirl is a low-cost decorative plywood panel with an authentic rustic texture that is recommended for wall paneling and for constructing built-ins, cabinets, book-cases, etc. By a special process, the soft growth of the face wood has been removed to accent the pleasing swirls and contours of the Douglas Fir. There are no knots, burls, wood growths on the face.

Finishes beautifully—natural or in many rich colors. Also, for duotone shading, dry pigment can be worked into the face.

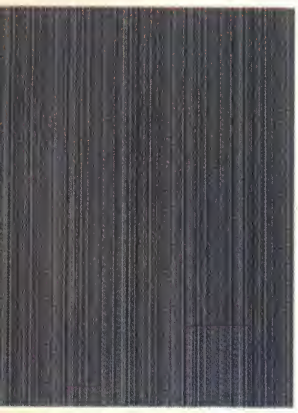
Available 5/16″ and ¾″ thick, in standard size panels.

SURFWOOD®

Weldwood Surfwood is a deep-relief textured paneling quite similar to Sea Swirl, with sound and open knots for more rugged-looking interiors. Of white fir plywood, Surfwood is priced right for all low-budget building or remodeling jobs. Available, 5/16″ and ¾″ thick, in panels and squares.

PREFINISHED SURFWOOD

Decorator-colored in Havana Green, Fawn, Frosted Ebony, and Silver Grey, Weldwood Prefinished Surfwood's deep relief and natural growth characteristics are styled to suit any room. Especially effective for whole walls or accent area in 'carefree' rooms. The satin-smooth beauty needs practically no care.



WELDWOOD STRIATED PLYWOOD

WELDTEX®... the original, low-cost, patented striated plywood paneling

Creates entirely different moods for walls and ceilings in homes and offices, for exterior siding, for displays, furniture and countless other uses. Deep parallel, random-width grooves (striations) are cut full length on the panel. The unusual highlights and shadows conceal butt joints and nail holes. No grain raise or checking.

Panels Interior Grade: 5/16″ thick; Douglas Fir, Philippine Mahogany.
Exterior Grade: ⅜″ thick; Douglas Fir.

Squares Interior Grade: 5/16″ thick; Douglas Fir, Philippine Mahogany. 11⅞″, 12″, 15⅞″, 16″, 24″ squares for "checkered" walls and ceilings.

WELDTEX SIDING

Quickly installed, Douglas Fir: ⅜″ x 48″ x 15⅞″ in bundles of 22 panels. Exterior Grade. FHA-approved. Takes any finish.

SPECIAL PURPOSE WELDWOOD PANELS



WELDWOOD NOVOPLY®

. . . the flattest wood product available

Gleaming mosaic "textured" decorative surface needs no finishing. Its combination of easy machining and fastening and outstanding stability makes Novoply the ideal material for paneling, partitions, doors (sliding, bifold, cabinet), cabinets, built-ins, furniture, displays, store fixtures, and many other uses. As a core, Novoply needs no cross banding; requires less glue to hold wood veneers and plastic laminates securely.

Novoply is made of resin-impregnated Pine flakes and chips. It is stocked in a wide variety of panel thicknesses and sizes, and can be ordered as cut-to-size panels and as machined shapes.

Filled Novoply should be specified where a perfect paint finish is to be applied.

WELDWOOD OLD CRAFTSMAN PINE

Pine throughout, Weldwood Old Craftsman Pine is a fine quality, low-priced plywood suitable for paneling, built-ins, cabinet work and furniture in all types of buildings, in all types of rooms. Whether for residences, offices, stores, or institutions, Old Craftsman Pine will prove its quality. It is very easy to work cleanly with hand or power tools—requires practically no sanding or other surface preparation before natural, paint, stain or enamel finishes are applied. Practically free from grain-raise and checking, Old Craftsman Pine takes finishes uniformly and holds them longer.

¼″ to 1-3/16″ thick panels of interior grade Old Craftsman Pine are available 36″ and 48″ wide in 72″, 84″, 96″ and 120″ lengths to save waste in the shop and on the job.



Flexwood—a thin veneer of real wood that is cloth-backed—goes on any wall curved or straight. Brazilian Rosewood Flexwood is shown here in the City Ticket Office Continental Airlines, Chicago. Designers: Charles Butler & Associates.



Weldwood Walnut Movable Partitions with matching Weldwood Stay-Strate doors in the offices of Union Oil Company, Los Angeles. Architects: Pereira & Luckman, Los Angeles.

OTHER WELDWOOD PRODUCTS FOR ARCHITECTURAL USE

WELDWOOD DOORS

The desirability of the selected wood veneers and satisfactory results of quality-controlled, precision manufacture are indicated by the increasingly large number of Weldwood Doors that architects are specifying, in factory finishing of their choice.

Weldwood Fire Door—Fire protection plus beautiful hardwood faces . . . carries the UL-label for Class "B" and "C" openings (interior) in hospitals, hotels, schools, institutions, office and apartment buildings, residences. Guaranteed for the life of the installation. Lighter in weight than other types of fireproof doors. Original cost is moderate and maintenance is only an occasional waxing. The incombustible core is the extremely strong, light in weight, mineral, Weldrok®. It will not warp or shrink.

Weldwood "Stay-Strate"® Door—For interior and exterior use in hospitals, hotels, schools, institutions, office and apartment buildings, residences. Guaranteed for the life of the installation. Combines the natural beauty of hardwood face veneers with Weldrok mineral core.

Weldwood Staved Lumber Core Door—All-purpose interior/exterior doors. The highest quality door of its type, especially suitable with superior Algoma-Made Weldwood paneling. Guaranteed for life against delamination and 24 months against defect.

Hollow Core Door—Proven most satisfactory in a wide variety of interior and exterior uses.

Weldwood Custom Royal Door—Combines durable, decorative Micarta® faces with your choice of Weldwood door constructions. For restaurants, hotels, cafes, hospitals, schools, churches. Guaranteed for two years. Shows virtually no signs of wear . . . wipes clean with a damp rag.

Institutional Doors—For all public buildings, where doors must withstand frequent, severe opening actions. Guaranteed as set forth in the Standard Warranty of the National Woodwork Manufacturers Association.

Weldwood Duraply Paint Grade Exterior Doors—With paintable CreZon® overlay on "Stay-Strate" or Staved Lumber Core constructions.

Weldwood Acoustical Doors—Economical doors with good db loss ratings, for predictable sound control between rooms and areas in all buildings.

SPECIAL PURPOSE DOORS

Novoply® Doors—Novoply doors will not warp, swell or shrink. Trouble-free, space-saving, sliding and folding doors of Novoply come in complete package units.

Metal-Clad Doors **X-Ray Doors**

WELDWOOD MOVABLE PARTITIONS

Weldwood Movable Partitions permit complete utilization of available floor space . . . allow re-layout as often as space needs change. Office, hospital and general areas can enjoy the beauty of hardwood, plastic laminate, or fabric-covered paneling plus the flexibility and economy of partition walls. The exclusive key-interlock system provides quick, easy erection and rapid dismantling.

WELDWOOD MOLDED PEW SEATS

A standard molded plywood shape is available for fabrication into pew seats for churches, courtrooms, and rail, air and bus terminals.

WELDWOOD GLASWELD® • WELDWOOD ADHESIVES
WELDWOOD CHALKBOARD • FLEXWOOD®
WELDWOOD HARDBOARD • KALISTRON®
ARMORPLY® • WESTINGHOUSE MICARTA®

WELDWOOD® PLYWOOD AND ALLIED PRODUCTS

DOUGLAS FIR WELDWOOD®

. . . an excellent general utility panel that permits important construction economies

Douglas Fir Weldwood is an engineered, quality material—fabricated in types, grades and sizes to meet a variety of building requirements. All phases of manufacture are united in a controlled, self-integrated Weldwood operation, based on years of plywood manufacturing experience.

EXCLUSIVE WELDWOOD FEATURE:

Most interior grade Douglas Fir Weldwood is now made with L-1R mold-resistant resin adhesive—a new adhesive which gives positive protection against mold (which has been one of the major causes of delamination). Interior Douglas Fir made with this adhesive can be safely stored outdoors on blocks for as long as 6 months without cover or one year under tarpaulin—an important feature for sheathing, subflooring and other structural materials. For concrete form work, interior Douglas Fir made with L-1R adhesive has provided as many as 15 reuses.

VARIOUS GRADES

The Weldwood line is complete—and always available from stock. The full variety of thicknesses, widths, and lengths assures the economy of purchasing exactly what is required for the job.

Interior Grades—for everything from sheathing to furniture; most with exclusive Weldwood L-1R mold-resistant glue line.

Exterior Grades—waterproof, for outdoor and marine applications—in all face grades from sound-both-sides to unsanded and in all possible ply constructions.

Custom Fabricated Plywood—cut-to-size, and specially machined Douglas Fir Weldwood parts to match your prints—including boring, shaping, etc., ready for your assembly.

WELDWOOD DURAPLY®

Cellulose fiber phenolic resin medium density overlay on fir plywood—a low cost, paintable, weather-resistant panel for exterior siding, utility paneling, garage doors, boat construction and highway signs. Also for any interior use where a finer, longer lasting finish is desired than can be economically realized on plywood. Available from United States Plywood Corporation warehouses in a full range of thicknesses and panel sizes; can be ordered as machined parts or cut-to-size pieces.

WELDWOOD PERMAPLY®

High density overlaid fir plywood. Colored. Perfect for all exterior, interior, and marine uses that need no paint. Excellent for signs and billboards. Available in all thicknesses and panel sizes as well as machined or cut-to-size parts.

WELDWOOD TEXTURE ONE-ELEVEN

Deep parallel grooves are cut into the face of this 100% waterproof exterior fir plywood construction to provide a decoratively textured weather-proof siding that can be finished as desired. Texture 1-11, originally designed for siding, soffits, porch ceilings, carports, breezeways, etc., of private residences, has found remarkable success for commercial structures—motels, restaurants, stores, roadside cafes, etc.—as well. Available 3/8″ and 5/8″ thick in 16″, 32″, 48″ width and 96″, 108″, 120″ lengths.

WELDWOOD REUSABLE CONCRETE FORM PANELS

Weldwood Concrete Form panels are available for producing smooth and textured concrete. They provide the most possible re-uses with least possible cost. They permit dependable, strong, light-in-weight forms that are easy to handle and easy to strip and clean for reuse. Available with waterproof or mold-resistant glue lines.

FOR TEXTURED CONCRETE

Weldwood Formtex®—Deep grooved, wide, smooth striations that are easy to strip clean to avoid patchwork and hand finishing of the concrete. (2 designs available.)

Weldwood Surf-Form®—Abraded to provide concrete with an authentic wood-grain texture in deep relief.

FOR SMOOTH CONCRETE

Weldwood Permaply®, Concrete Form Grade—The smoothest possible panel—needs no face oiling. Assures most possible re-uses for economical, rapid concrete pouring.

Weldwood Plyform—Smooth faced—L-1R or Exterior glue line. Low cost re-usable form panel.

All Weldwood products are manufactured and distributed by

UNITED STATES PLYWOOD CORPORATION

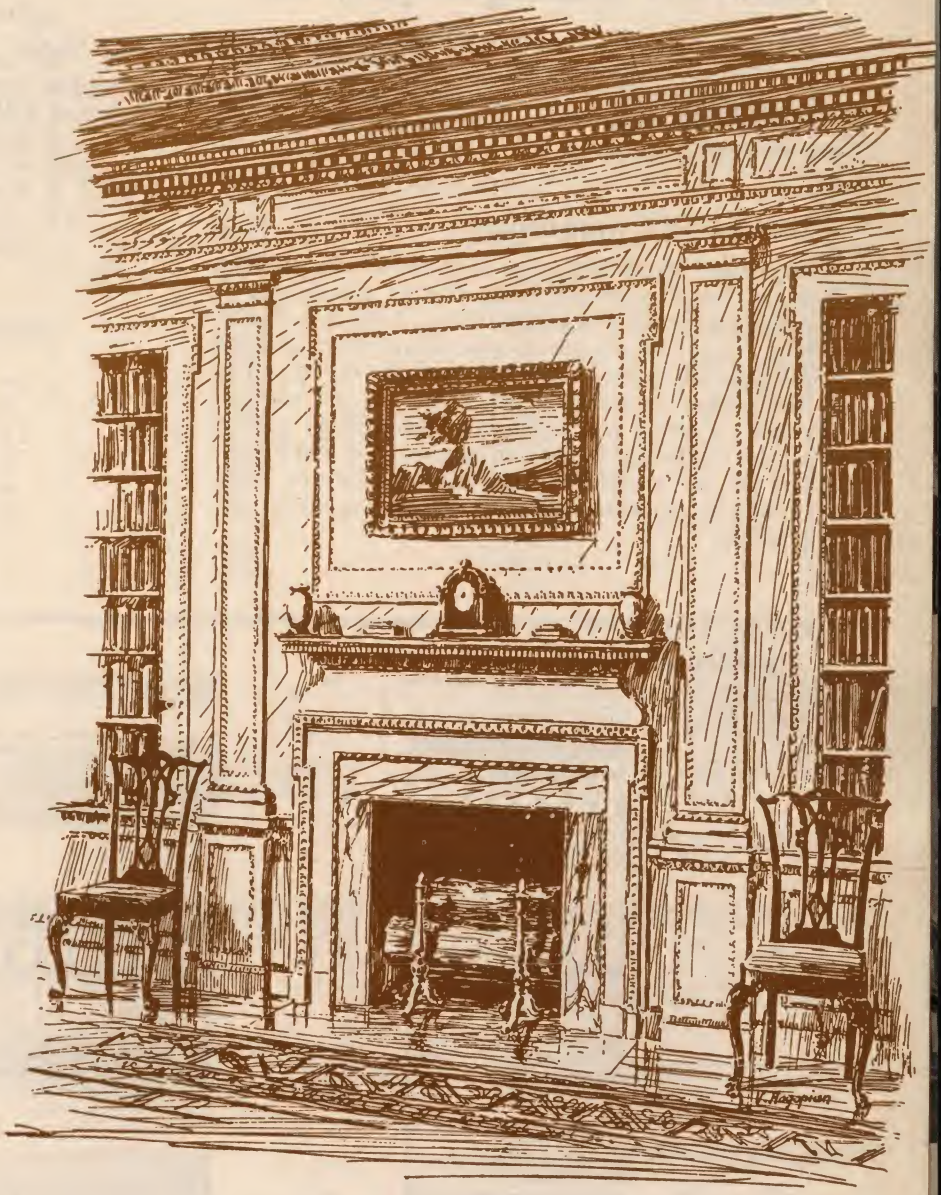
Weldwood

Weldwood Building 55 West 44th Street New York 36, N. Y.

in Canada: **WELDWOOD PLYWOOD LTD.**

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Printed in U.S.A.



embossed

DRIWOOD

ornamental wood mouldings

complete catalog and samples furnished on request

DRIWOOD *Moulding Company, Inc.*

For more than half a century, Driwood Corporation has catered to discriminating architects and designers, supplying them with Driwood Mouldings to enhance the beauty of residential, institutional and commercial buildings.

DRIWOOD *mouldings*

Driwood Mouldings, in embossed ornamented wood, have replaced hand carved mouldings in price, durability and adaptability. Driwood mouldings are processed out of solid wood that has been scientifically kiln-dried and carefully milled. Unlike plaster or composition, they will not chip or crack. Factory made, Driwood Mouldings possess all the depth and beauty of hand carved mouldings, and yet, are available in 119 individual styles. Thus, unlimited combinations and theme variations are possible.

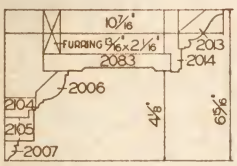
advantages

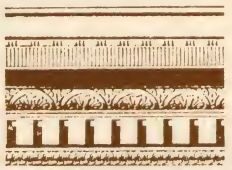
- economy
- simple installation
- solid wood (no chipping)
- architecturally designed
- available in white or any matching color
- over 100 design variations
- suitable for cornices, wall panels, door heads, chair rails, etc.

applications

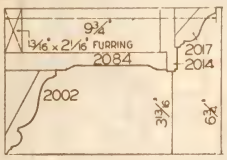
- homes
- hotels
- apartment houses
- schools
- theatres
- libraries
- club houses
- office buildings
- churches
- restaurants
- ships
- board rooms

Ceiling Cornices ½th full size



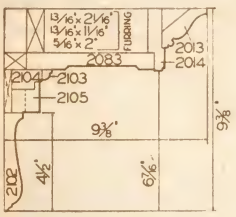


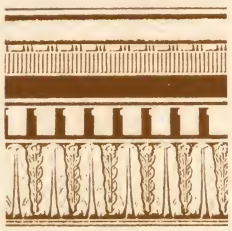
Assembly CC-1



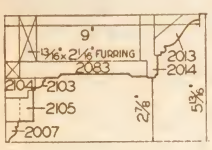


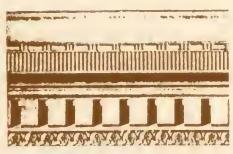
Assembly CC-2



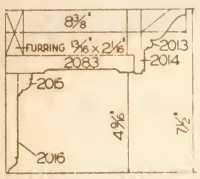


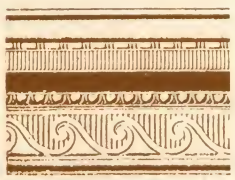
Assembly CC-3



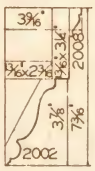


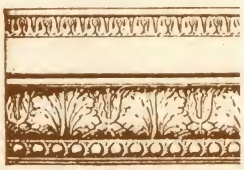
Assembly CC-4



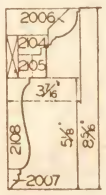


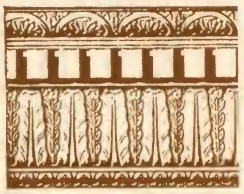
Assembly CC-5



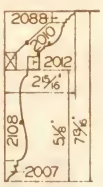


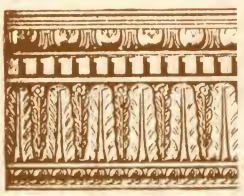
Assembly CC-17



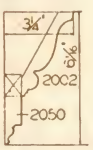


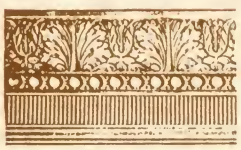
Assembly CC-18



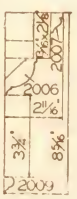


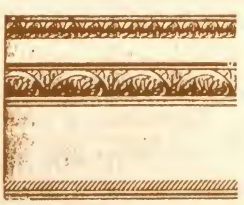
Assembly CC-19



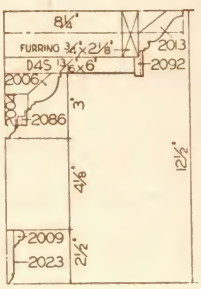


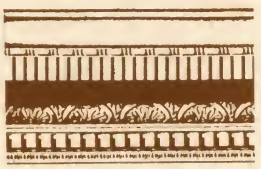
Assembly CC-20

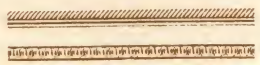




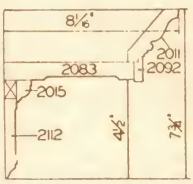
Assembly CC-21

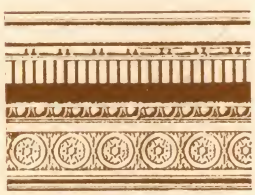




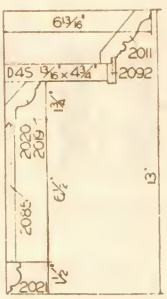


Assembly CC-6



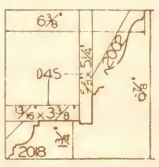


Assembly CC-7





Assembly CC-8

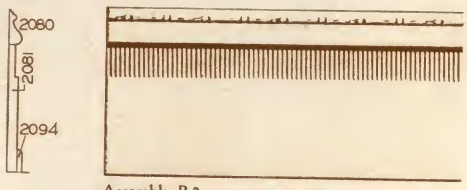




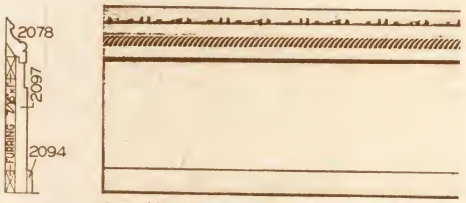
Assembly CC-9

complete catalog and samples furnished on request

Bases

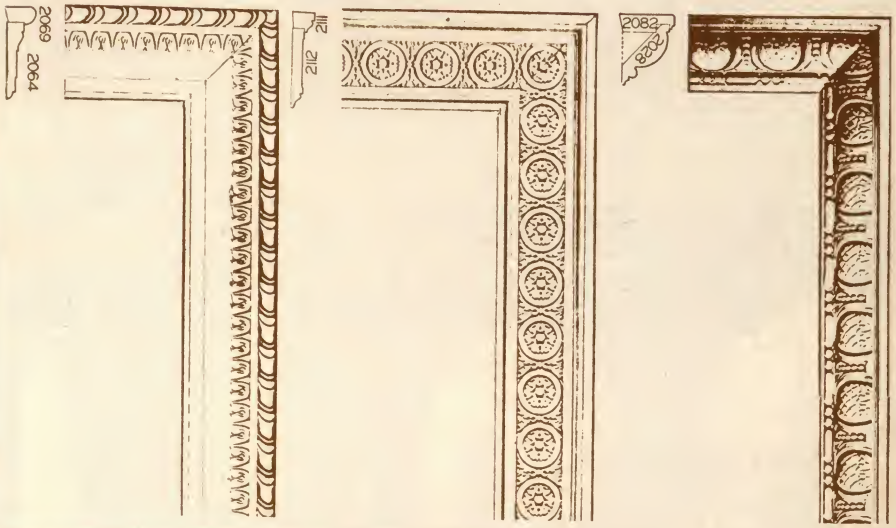


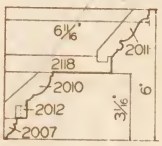
Assembly B-3. $1\frac{1}{16}$" x $7\frac{1}{2}$"



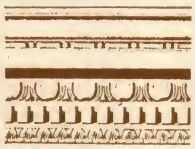
Assembly B-4. $1\frac{1}{4}$" x $8\frac{1}{16}$"

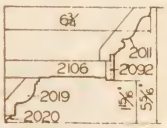
Door and Window Casings



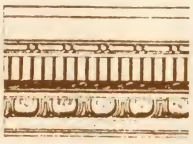


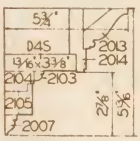
Assembly CC-10



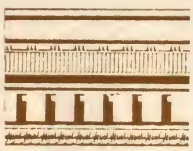


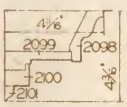
Assembly CC-11



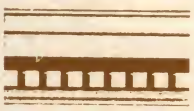


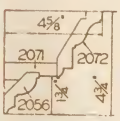
Assembly CC-12





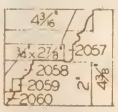
Assembly CC-13



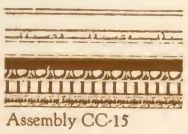


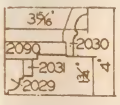
Assembly CC-14





Assembly CC-15





Assembly CC-16



Picture Mouldings



Assembly PM-1. $1\frac{3}{16}$" x $1\frac{7}{8}$"

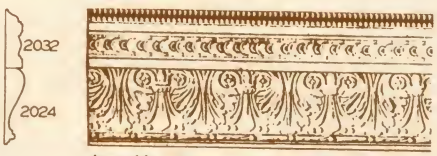


Assembly PM-2. 1" x $2\frac{1}{16}$"



Assembly PM-3. $1\frac{1}{4}$" x $2\frac{1}{2}$"

Ceiling Panels



Assembly CP-1. $\frac{7}{8}$" x $6\frac{3}{16}$"

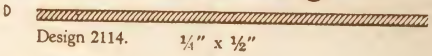


Assembly CP-2. $\frac{7}{8}$" x 5"

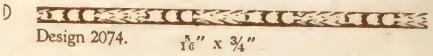


Assembly CP-3. $1\frac{1}{16}$" x $2\frac{9}{16}$"

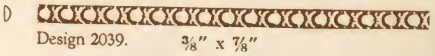
Wall Panel Mouldings



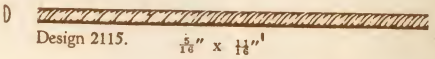
Design 2114. ¼" x ½"



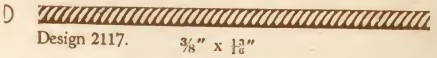
Design 2074. $\frac{5}{16}$" x ¾"



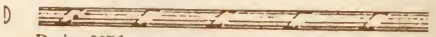
Design 2039. ⅜" x ⅞"



Design 2115. $\frac{5}{16}$" x $1\frac{1}{16}$"



Design 2117. ⅜" x $\frac{13}{16}$"



Design 2076. $\frac{5}{16}$" x $\frac{13}{16}$"



Design 2116. ¼" x $\frac{13}{16}$"



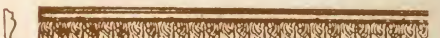
Design 2077. $\frac{5}{16}$" x $1\frac{1}{16}$"



Design 2073. ⅜" x 1⅜"



Design 2075. ⅜" x 1½"



Design 2052. $\frac{9}{16}$" x 1¾"



Design 2091. $\frac{9}{16}$" x 1¾"



Design 2053. ⅝" Sc., x $1\frac{1}{8}$"

Design 2087. $1\frac{1}{16}$" x $2\frac{7}{16}$"

ORNAMENTAL WOOD MOULDINGS

drapery valances, made of solid wood which will not chip or crack, are supplied unfinished in long lengths which may be cut and mitered to suit design conditions. Furnished in 4½" and 8" heights.



Marie–Antoinette



Jenny Lind



Martha Washington

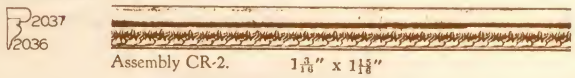


Renaissance

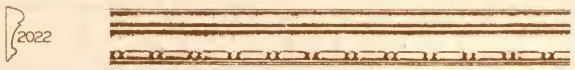
chair rails ⅛th full size



Assembly CR-1. 1" x 1¾"



Assembly CR-2. $1\frac{3}{16}$" x $1\frac{15}{16}$"



Assembly CR-3. $\frac{13}{16}$" x 2½"



Assembly CR-4. $\frac{13}{16}$" x 2½"



Assembly CR-5. $1\frac{7}{16}$" x 2⅝"



Assembly CR-6. 1½" x $3\frac{5}{16}$"



Assembly CR-7. $1\frac{7}{16}$" x $3\frac{3}{16}$"



Assembly CR-8. $1\frac{3}{16}$" x 4⅜"

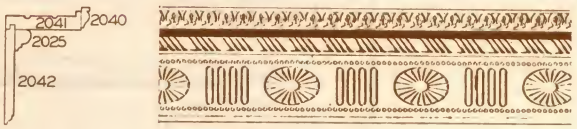


Assembly CR-9. $1\frac{1}{16}$" x $4\frac{7}{16}$"



Assembly CR-10. 1½" x $4\frac{13}{16}$"

plate rails ⅛th full size



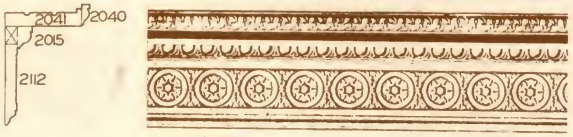
Assembly PR-1.



Assembly PR-2.



Assembly PR-3.



Assembly PR-4.

complete catalog and samples furnished on request

DRIWOOD MOULDING CO., Florence, S. C.

P. O. Box 1418 **Tel. MO 9-8264**



Residence, River Forest, Ill.

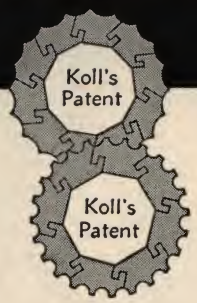
Marx & Lutz, Architects, Chicago, Ill.

WOOD COLUMNS

Koll's Patent Lock Joint

by HARTMANN-SANDERS

Lock-Joint WOOD COLUMNS by Hartmann-Sanders



Columns and Pilasters
Caps, Bases and Plinths

Since 1900 the Hartmann-Sanders Company has specialized in the design and construction of quality columns for exterior and interior use—featuring the "Koll's Patent" Lock-Joint wood stave construction which cannot come apart. Our factory of 40,000 square feet is the largest and best equipped plant of its kind in the country devoted exclusively to this class of work. The personnel in each department consists of experienced craftsmen, thoroughly trained architecturally and mechanically in the best traditions of column design and construction. Thousands of installations throughout the United States attest to the lasting qualities of these columns.

Designs and Other Products

The designs of Hartmann-Sanders standard columns are based on proportions of the five orders of architecture. They can also be furnished in special designs, without additional charge, if they do not depart drastically from standard types.

Hartmann-Sanders will promptly furnish estimates according to the architect's drawing and full size detail on the following items: special columns, pilasters, porch materials, colonial entrances for exterior and interior uses, and special architectural woodwork. Our experience with the above work enables us to correctly interpret the wants of the most discriminating architect. A Hartmann-Sanders representative will be glad to help you solve your particular problem.

Lock-Joint Columns and Pilasters

Carrying Capacity of Columns—Our columns are able to carry the weight of any wood cornice, pediment, or ordinary balcony without a structural timber or iron column on the inside. When necessary to use a structural support, columns are made in halves and doweled with hardwood dowels about three feet apart so that they can easily be taken apart before erection and put together with cold water glue. Clamps will be furnished on request, to be returned to the factory when they have served their purpose. Architects are cautioned not to permit blocking or wedging between the inside of the column and the structural post. This is important.

Splice Joint—In addition to the perfect lock-joint used to assemble the staves of the column, we have devised a dovetailed joint, put together with waterproof glue under screw pressure, to splice the ends of the staves if the length of columns calls for material longer than can be secured in one piece. (See cut.) It is practically impossible to make a tight butt-joint without this splice illustrated at the right. These added features make our columns mechanically perfect.

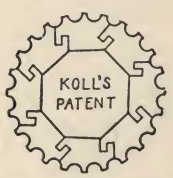


Correct Entasis—Shafts are turned in the lathe with the correct entasis. To assure uniform stave thickness and strength, the staves are straight one-third and gradual-tapered for the upper two-thirds—an outstanding Hartmann-Sanders feature. This compensates for the entasis and allows for fluting and necking coves without cutting too close to joint.

Fluting—Illustrated below are sections showing the two standard types of fluting.



Section Showing Doric Fluting on Design 215, 195



Section Showing Ionic Fluting on All Other Column Designs

Stopping Flutes—The ends of flutes on Ionic fluted columns are stopped at top and bottom on a half circle by a special attachment on our machines, thereby emphasizing the strong lines and beauty of a fluted column. This is extremely important for correct architectural design of columns and pilasters.

Wood Columns

For Exterior Use



Harvard Memorial Chapel, Harvard University, Cambridge, Mass.
Coolidge, Shepley, Bulfinch & Abbot, Architects
Columns are 60" diameter, 28' long, Design 190

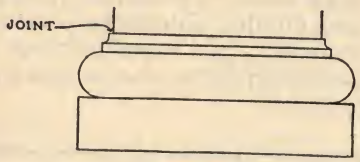
For Interior Use



Winnetka Congregational Church, Winnetka, Ill.
Aymar Embury, II, Architect
Columns are 24" diameter, 24' long

Thickness of Stock

Experience in column construction has demonstrated that the thickness of stock for the various sizes as shown in the table below will provide enough material to carry out the architectural detail properly and afford sufficient strength.



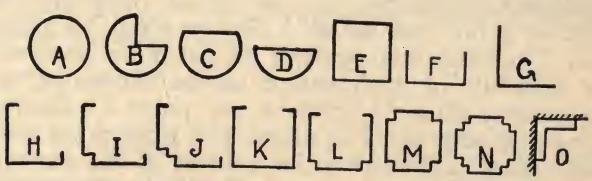
Style C

Minimum Thickness of Stock

Plain Shaft	Up to 12 in. Dia. 10'0" long	1½ in staves
	Above 10'0" long	2 in. staves
	13 in. to 22 in. Dia.	2 in. staves
	23 in. to 38 in. Dia.	3 in. staves
	39 in. and up	4 in. staves
Fluted Shaft	6 in. to 8 in. Dia. 10'0" long	1½ in. staves
	Above 10'0" long	2 in. staves
	9 in. to 20 in. Dia.	2 in. staves
	21 in. to 36 in. Dia.	3 in. staves
	37 in. and up	4 in. staves

Types of Lumber—As Hartmann-Sanders columns are furnished with a guarantee, we reserve the right to use such lumber which in our opinion is the most enduring. With this thought in mind, for exterior columns we use clear heart California Redwood free from all sap, found from our experience to be the most durable for column construction. This lumber comes in lengths longer than average, and therefore, can be furnished with a minimum of spliced staves. Columns and pilasters for interiors are made in all woods.

Plan Types—The drawings below show the scope of Hartmann-Sanders column and pilaster plan types available.



Ventilation Inside the Column—To provide continuous circulation of air on the inside of the column, a hole should be bored through the column shaft above the neck bead where a wood cap is used or beneath the neck bead for composition caps. The hole to be located on the inside, facing the building.

Caps



Greek Ionic Composition Cap

Durabilt Composition Caps—All ornamental caps shown on the various column designs in this catalog are made in the Hartmann-Sanders factory of Durabilt hard texture composition, used exclusively by us. Because of its weatherproof and water resisting ingredients, this material is guaranteed to withstand the deteriorating influence of the elements. All stock models are made in accordance with proportions called for by the various orders of architecture. Facilities are available for making models for special caps from architect's details. When composition caps are to be used, suitable wood dowels are furnished without extra cost to carry the weight of the overhead work.

Wood Hand Carved Caps—Hartmann-Sanders is prepared to furnish wood hand carved caps, using its stock composition caps as models or making them according to the architect's own detail.



Flashing of Exterior Caps

If the entire top of exterior composition or wood caps is not covered with the flashing of galvanized iron, sheet lead or copper, the water, snow and ice that strike the cornice or facia is bound to run into and down the cap, effecting its ultimate disintegration.

If the moisture has access from the top to the inside of the column, it will cause swelling of the material, thereby injuring the attractive appearance of the column. The flashing of galvanized iron, zinc or copper should be applied preferably at the factory or by the sheet metal contractor.

It should cover the entire top of the abacus and turn down over the top member at least ½ in. as illustrated above.

Architect's Specifications

In order to enable the architect to incorporate essential items in his specifications, we offer herewith a typical specification in two concise paragraphs. More detailed specifications are given to be used at the discretion of the architect by merely including a paragraph covering accessories. Any and all accessories will be included by the Hartmann-Sanders Co. only when specified to be furnished by the manufacturer.

"Columns shall be Koll's Patent Lock-Joint Staved Wood Columns, manufactured by the Hartmann-Sanders Co., Chicago, and New York, according to their design No. .... (here specify design number in catalog. If the design is to be made according to architect's drawings: "To be made according to architect's full size detail".) Staves shall be made of .... in. stock (here specify the thickness required. For schedule of thickness of staves necessary for the various sizes of columns see page 3.) Shafts, bases and caps shall be glued with waterproof cold water glue. Columns to be primed at the factory with a coat of white lead and oil. When ornamental caps are used specify "DURABILT COMPOSITION CAPS".

"Material shall be .... (here specify lumber, see page 3.) The tops of all capitals shall be flashed with .... (here specify sheet lead, copper or lead coated copper.) The square plinths shall be .... (here specify ventilated wood plinths, ventilated cast iron plinths, aluminum plinths, or lead plates. The protection and installation of the columns shall be according to the instructions furnished by the manufacturer."

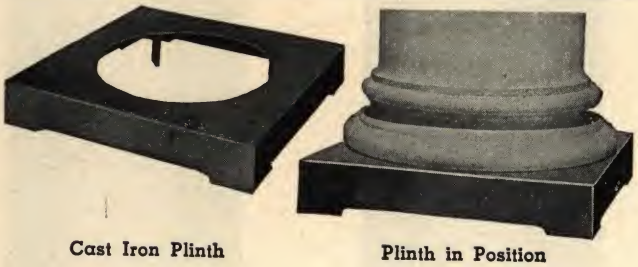
Installation

Should the columns arrive at the building before they can be installed, they must be stored in the building or properly protected with waterproof coverings in a thorough manner, including both ends and top of the column shafts. Do not lay columns directly on the ground. Hartmann-Sanders is not responsible for damages caused by improper care while the columns are on the job awaiting installation.

We recommend that after the bases are in place and before setting the shaft in position on the base that a heavy coat of white lead be applied to that part of the base which would be occupied by the shaft. Contractors are cautioned not to depend on the priming coat for an indefinite period after the columns are erected. We advise that the columns, caps and bases be given a second coat of paint immediately upon erection and we recommend three coats of paint over our priming coat.

Wood Columns

Plinths



Cast Iron Plinth

Plinth in Position

Ventilated Cast Iron or Aluminum Plinths

When columns rest on cement, brick or stone floors, we recommend the use of ventilated cast iron or aluminum plinths. We have found from careful study that they fill a long-felt necessity. They not only eliminate the annoyance often caused by the deterioration of mitred wood plinths, but also provide for the circulation of air to the inside of the column shaft, which is a very essential feature. They are finished smooth and when painted on the job harmonize with the finish of the column.

Ventilated Wood Plinths—All exterior columns, with the exception of No. 190 and 195 are provided with ventilated wood plinths, unless otherwise specified.

Metal Plinth Dimensions

For Bottom Diameter of Shaft	Size of Square Plinth	Height	For Bottom Diameter of Shaft	Size of Square Plinth	Height
5 in.	6¾ in. sq.	1⅝ in.	16 in.	21½ in. sq.	3⅞ in.
6 in.	8 in. sq.	1⅝ in.	17 in.	23 in. sq.	4 in.
7 in.	9⅜ in. sq.	1¾ in.	18 in.	24¼ in. sq.	4¼ in.
8 in.	10¾ in. sq.	1⅞ in.	19 in.	25⅝ in. sq.	4½ in.
9 in.	12⅛ in. sq.	2⅛ in.	20 in.	27 in. sq.	4¾ in.
10 in.	13½ in. sq.	2⅜ in.	21 in.	28⅜ in. sq.	5 in.
11 in.	14⅞ in. sq.	2⅝ in.	22 in.	29¾ in. sq.	5¼ in.
12 in.	16¼ in. sq.	2¾ in.	23 in.	31⅛ in. sq.	5½ in.
13 in.	17½ in. sq.	3 in.	24 in.	32½ in. sq.	5¾ in.
14 in.	18¾ in. sq.	3⅜ in.	25 in.	33¾ in. sq.	6 in.
15 in.	20¼ in. sq.	3⅝ in.	26 in.	35⅛ in. sq.	6¼ in.

Lead Ventilating Plates—Recommended on Greek Doric Columns as well as the bottom of turned bases which rest on stone plinths. On the Greek fluted columns the plates are made to conform to the outline of the flutes. These plates are made ¼, ½ or ¾ in. thick in four parts with a space between each part to provide ventilation.

Ordering

Mention Hartmann-Sanders catalog number and in addition give the following information:

Columns—Give quantity wanted and size at largest and smallest diameter of shaft, thickness of staves and overall length.

State if for interior or exterior use.

A glance at Fig. 1 will show where measurements are usually taken.

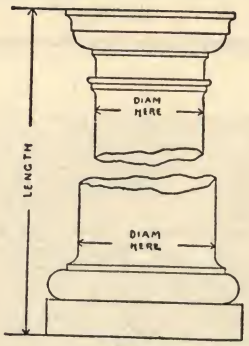


Fig. 1

Pilasters—When ordering pilasters to match columns, note that they are made three ways:

1. Pilaster face to have the same taper as column shaft.
2. Pilaster face to be the same width as top diameter of column shaft.
3. Pilaster face to be equal to half the difference between top and bottom diameter of column shaft.

Also give the dimension of the pilaster return. Refer to Fig. 1.

Plinths—Specify type of material to be used.

Flashings—Specify material if Hartmann-Sanders is to supply.

Caps—In ordering column caps give type, quantity and size required; also state whether for exterior or interior use. Diameter of columns should be taken where shown on Fig. No. 2 for Corinthian, Erechtheum, Composite, Angular Greek with Necking, Scamozzi with Necking, and Temple of Winds capitals, and for all other capitals, either according to Figs. 3 or 4, whichever way the neck of shaft is turned.

Unless otherwise specified, pilaster caps will be furnished with same shaft measurements as column capitals and returning one-half. Note line drawing Fig. 1 before ordering.

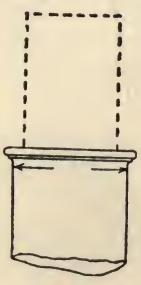


Fig. 2

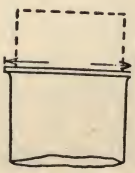


Fig. 3

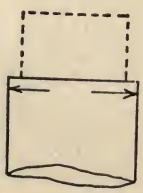


Fig.4

Lock-Joint Wood Columns

Design 190 (illustrated)
Greek Doric column, plain shaft

Design 195 (illustrated)
Greek Doric column, fluted shaft

Design 230
Similar to Design 235 but with plain shaft

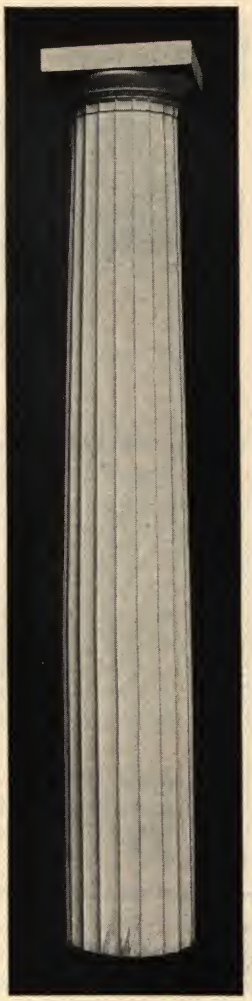
Design 235 (illustrated)
Roman Ionic cap, fluted shaft, Attic base

Design 240 (illustrated)
Scamozzi cap, plain shaft, Attic base

Design 245
Similar to Design 240 but with fluted shaft



Design 190



Design 195

Hartmann-Sanders Installations

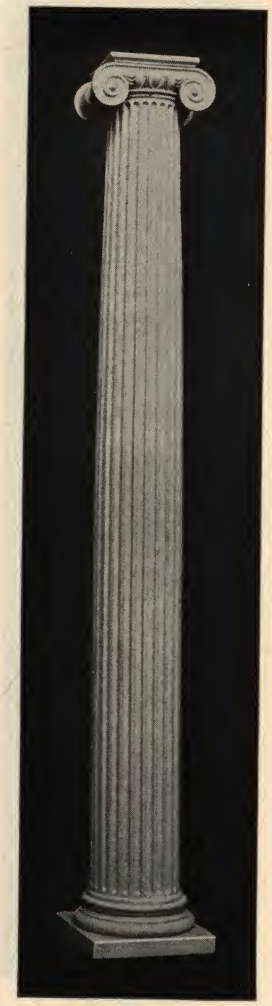


Residence at
Scarsdale, New York

Edgar and
Verna Cook Salomonsky,
Architects, New York City

Columns are
9" diameter, 18' long

Wood Columns



Design 235



Design 240



Scamozzi Cap
Used on Design 240, 245



Roman Ionic Cap
Used on Design 230, 235



Residence at
Irvington, New York

Aymar Embury, II,
Architect, New York City

Columns—*Continued*

Design 200 (illustrated)
Tuscan column, plain shaft

Design 205 (illustrated)
Tuscan column, fluted shaft

Design 260 (illustrated)
Greek Ionic cap, plain shaft, Attic base

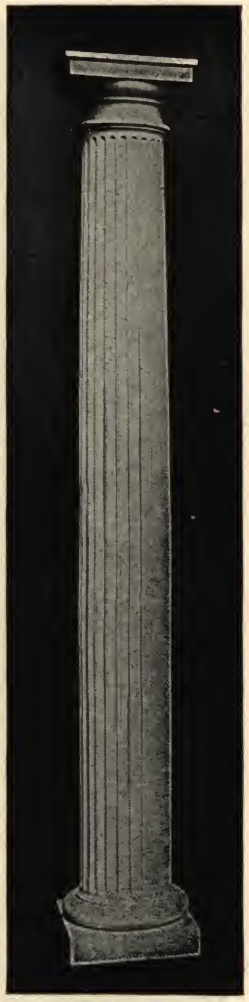
Design 265
Similar to Design 260 but with fluted shaft

Design 270
Similar to Design 275 but with plain shaft

Design 275 (illustrated)
Angular Greek Ionic cap, plain shaft, Attic base



Design 200



Design 205



School Auditorium
Glencoe, Illinois

Warner, McCornack and Mitchell, Architects, Cleveland, Ohio

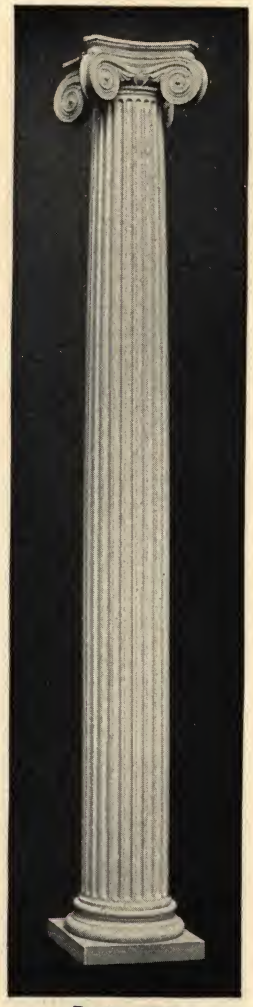
John A. Armstrong, Associate Architect, Chicago, Illinois

Columns are 21" diameter, 25' long

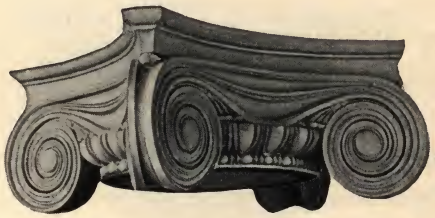
Wood Columns



Design 260



Design 275



Angular Greek Ionic Cap
Used with Design 270, 275



Greek Ionic Cap
Used with Design 260, 265



Residence at
White Plains,
New York

Donn Barber,
Architect,
New York City

Columns—*Continued*

Design 210 (illustrated)

Roman Doric column, plain shaft

Design 215 (illustrated)

Roman Doric column, fluted shaft

Design 250

Similar to Design 255 but with plain shaft

Design 255 (illustrated)

Corinthian cap, fluted shaft, Attic base

Design 280 (illustrated)

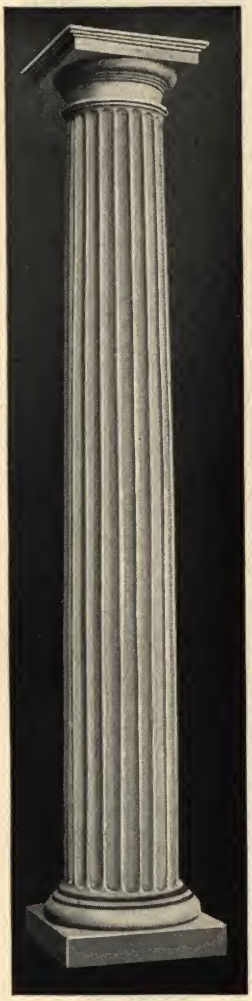
Angular Greek Ionic cap (with necking), plain shaft, Attic base

Design 285

Similar to Design 280 but with fluted shaft



Design 210



Design 215



Residence at Park Ridge, Illinois

Zook and McCaughey,
Architects, Chicago, Illinois

Columns are 20" diameter, 18' long
Design 240

Wood Columns



Design 255



Design 280



Corinthian Cap
Used on Design 250, 255



Angular Greek Ionic Cap (with necking)
Used on Design 280, 285



Field House and Gymnasium,
University of Maryland,
College Park, Maryland

Henry Powell Hopkins, Architect
Baltimore, Maryland

Columns are 36" diameter,
28' long, Special Design

Columns—*Continued*

Design 220 (illustrated)
Roman Doric cap, plain shaft, Attic base

Design 225
Similar to Design 220 but with fluted shaft

Design 290
Similar to Design 295 but with plain shaft

Design 295 (illustrated)
Erectheum cap, fluted shaft, Attic base

Design 330
Similar to Design 335 but with plain shaft

Design 335 (illustrated)
Temple of Winds cap, fluted shaft, Attic base



Design 220



Design 225

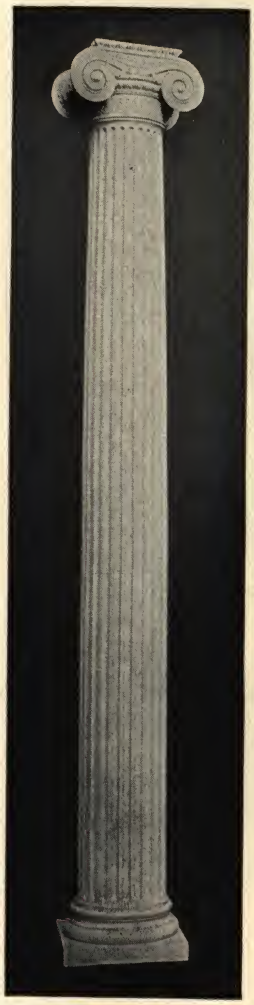


Hinsdale Memorial Building,
Hinsdale, Illinois

Edwin H. Clark,
Architect, Chicago, Illinois

Columns are 20" diameter, 24' long

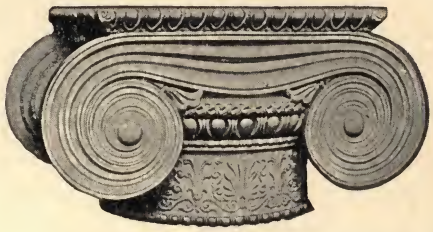
Wood Columns



Design 295



Design 335



Erectheum Cap
Used on Design 290, 295



Temple of Winds Cap
Used on Design 330, 335



Metropolitan Life Insurance Co.
Housing Project "Parklabrea"
Los Angeles, California

Leonard Schultze and Associates
Architect, New York City

Starrett Brothers and Eken,
Incorporated, Builders,
New York City

Representative Applications of Wood Columns



Western Division Headquarters
Aetna Insurance Co., Park Ridge, Ill.
Victor L. Charn, Architect
Ragnar Benson Inc., Builder



Alteration to residence at Rocky Ford, Colorado. Smaller picture shows house before alteration. Columns are 20" in diameter, 19' 5" long, Design 335. Width of building is 44' 9".

Wood Columns



St. Joseph's Church, Richmond, Illinois
Barry and Kay, Architects, Chicago, Illinois
Columns are 20" diameter, 15' 6" long,
Design 230



Chapel at Hanover College, Hanover,
Indiana
Jens Frederick Larson, Architect



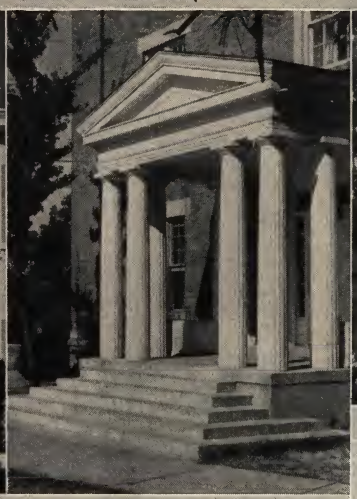
Screened Porch at Winnetka, Ill.—Chatten & Hammond, Architects.



Middle College at Beloit College, Beloit, Wisc.—Allen & Webster, Archts.



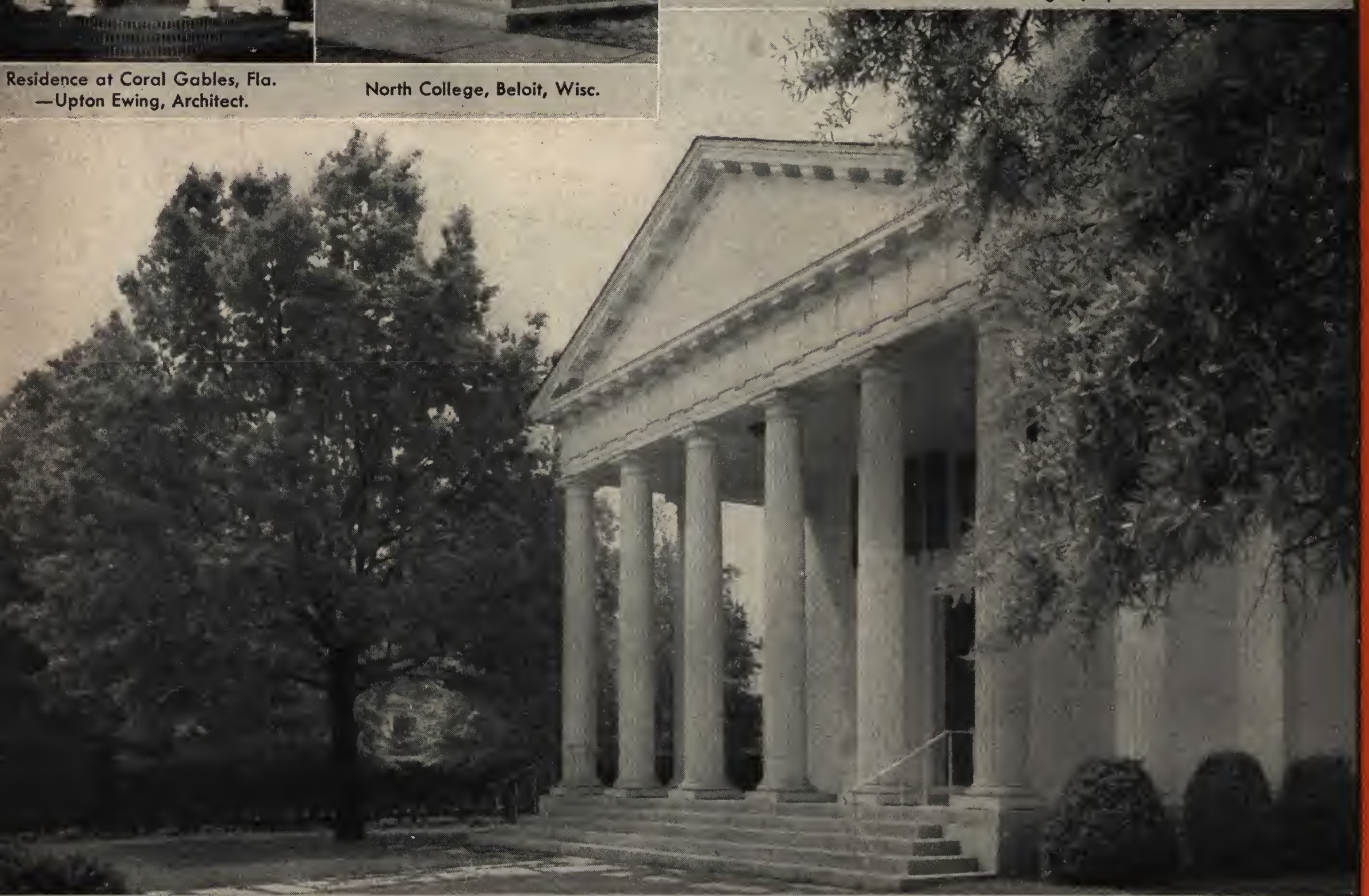
Residence at Coral Gables, Fla.
—Upton Ewing, Architect.



North College, Beloit, Wisc.



Residence at Lexington, Ky.



First Church of Christ Scientist, Charlotte, N. C.—Charles Draper Faulkner, Architect.

HARTMANN-SANDERS COMPANY

Main Office and Factory
2155 Elston Avenue, Chicago 14, Illinois
Telephone Brunswick 8-2868

Eastern Office and Showroom
101 Park Avenue, New York 17, New York
Telephone Murray Hill 5-6399

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- mouldings
- stairs and handrails
- decorative laminated plastic
- bank screens

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HOE CORPORATION
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POUGHKEEPSIE • NEW YORK
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HOE company facilities and design service:

The Hoe Corporation has completed over 600 custom millwork jobs in the northeast over the last 10 years. President Robert Hoe, Jr., has written many informative and technical brochures on various phases of millwork and has made them available to architects free of charge. This work has been further extended by his active participation in the Architectural Woodworking Institute.

The Company prides itself on the fine engineering and quality of its work that has pleased hundreds of architects and contractors. Its adequately staffed engineering department has aided many architects with proper and economical design.













COMPANY FACILITIES

Modern Plant with latest machinery and the finest trained employees to efficiently handle all sizes and types of custom millwork jobs.

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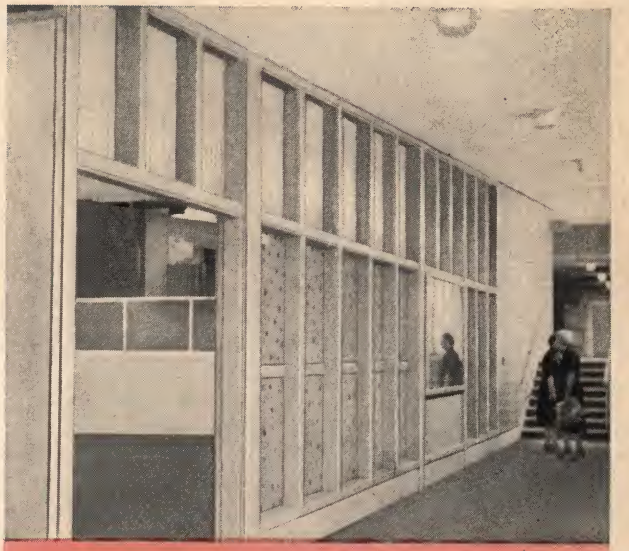
Skilled Cabinet Makers to assure that extra fine quality obtainable only in custom architectural millwork.

Dry Kilns & Experienced Operators for maximum control of moisture and lumber conditioning.

Adequately Equipped & Manned Tool Room for precision grinding and accurate setups to produce true and clean moulded profiles.

Carefully Controlled Apprentice Program to assure our customers of fine products for many years to come.

Large Modern Office with technical and drafting consultants always available to assist architects with information and construction details for any woodworking problem.



Cabinet work furnished for Cornwall on the Hudson School (Sargent-Webster-Crenshaw & Folley, Architects) Winner of better school design of 1957 and 1 of 5 schools shown at the 1959 U. S. Exhibition in Moscow.

Built-in bedroom furniture furnished for Russell Sage College Dormitory (Leland, Larson, Bradley & Hibbard, Architects) (Note: The drafting and engineering facilities of the Hoe Corporation are available to architects for assistance in preparing the best details in design and construction of dormitory furniture.



HOE CORPORATION

other installations

ELEMENTARY SCHOOLS

JOB	LOCATION	CONTRACTOR	ARCHITECT
James V. Forrestal Elementary School	Beacon, N. Y.	Louis J. Gardella New York, N. Y.	Starrett & VanVleck New York, N. Y.
Briarcliff Manor School	Briarcliff Manor, N. Y.	Fred L. Hewes Constr. New York, N. Y.	Carr & Wiggins New York, N. Y.
Pashley Rd. School	Burnt Hills Ballston Lake, N. Y.	James E. Lowe & Sons Schenectady, N. Y.	Ryder & Link Schenectady, N. Y.
Frankfort Central School	Frankfort, N. Y.	Manuso Bros. Utica, N. Y.	Urbahn Brayton & Burrows New York, N. Y.
Galway Elementary School	Galway, N. Y.	McManus Longe & Brockwehl Albany, N. Y.	Henry L. Blatner Albany, N. Y.
Edgemont School	Scarsdale, N. Y.	Stewart M. Muller Croton, N. Y.	Warren H. Ashley W. Hartford, Conn.
Greene Central School	Greene, N. Y.	Roger & McKay New York, N. Y.	Carl W. Clark Syracuse, N. Y.
Beech Ave. Elem. School	Niagara Falls, N. Y.	Albert Elia Bldg. Niagara Falls, N. Y.	S W C & F Syracuse, N. Y.
Frederick Leighton Elementary School	Oswego, N. Y.	Dawson Bros. Syracuse, N. Y.	Ketcham-Miller & Arnold Syracuse, N. Y.
Smith & Roxboro Rds. Schools	N. Syracuse, N. Y.	J. G. A. Constr. Syracuse, N. Y.	S W C & F Syracuse, N. Y.
Elementary School (Sixteen Acres)	Springfield, Mass.	Fontaine Bros. Chicopee, Mass.	Elroy Webber Springfield, Mass.
St. James, Nesconset, Sweetbriar Schools	Smithtown, N. Y.	Double M. Constr. New York, N. Y.	Ketcham, Gina & Sharp New York, N. Y.
Westover Elementary School	Stamford, Conn.	Frouge Constr. Bridgeport, Conn.	William Ballard Stamford, Conn.
Sharon Springs Central School	Sharon Springs, N. Y.	Augustus Miller, Inc. Utica, N. Y.	Myron A. Jordan Richfield Springs, N. Y.
Willard-Belltown School	Stamford, Conn.	Deluca Constr. Stamford, Conn.	Sherwood Mills & Smith, Stamford
Lockport Schools	Lockport, N. Y.	Laur & Mack Niagara Falls, N. Y.	S W C & F Syracuse, N. Y.
Newark Valley Central School	Newark Valley, N. Y.	Vincent J. Smith Binghamton, N. Y.	Walter P. Bowen Binghamton, N. Y.
Onteora Central School	Boiceville, N. Y.	I & O A Slutzky Hunter, N. Y.	Paul Hyde Harbach, Buffalo
Allen Creek School	Allen Creek, N. Y.	Robert F. Hyland Rochester, N. Y.	Faragher & Macomber Rochester, N. Y.

HIGH SCHOOLS

JOB	LOCATION	CONTRACTOR	ARCHITECT
Arlington High School	Poughkeepsie, N. Y.	S. H. Miller Constr. Poughkeepsie, N. Y.	Charles J. Cooke Poughkeepsie, N. Y.
New Jr. High School	Springfield, Vt.	Frechette-Clough Tupper Lake, N. Y.	Perley F. Gilbert Lowell, Mass.
Beatty Jr. High School	Warren, Pa.	Matthew L. Carroll New York, N. Y.	Lawrie & Green Harrisburg, Pa.
Ithaca High School	Ithaca, N. Y.	Frank W. O'Connell Binghamton, N. Y.	Perkins & Will White Plains, N. Y.
Jr. Sr. High School	Cattaraugus, N. Y.	John W. Cowper Buffalo, N. Y.	Carl C. Ade Rochester, N. Y.
Jr. Sr. High School	Rome, N. Y.	White Constr. New York, N. Y.	Perkins & Will White Plains, N.Y.

DORMITORIES

JOB	LOCATION	CONTRACTOR	ARCHITECT
Bowdoin College Dorm	Brunswick, Me.	Robert W. Gleason Dobbs Ferry, N. Y.	McKim Mead & White, New York
Clarkson Dorms	Potsdam, N. Y.	John W. Rouse Gouverneur, N. Y.	Egbert Bagg Assoc. Utica, N. Y.
Grace N. H. Hosp. Nurses Home	New Haven, Conn.	Edwin Moss & Son Bridgeport, Conn.	Douglas Orr New Haven, Conn.
Russell Sage College	Troy, N. Y.	R. D. Golden Troy, N. Y.	Leland, Larsen Bradley & Hibbard Boston, Mass.
Vassar College Cooperative Dorm	Poughkeepsie, N. Y.	Campbell Bldg. Co. Poughkeepsie, N. Y.	Marcel Breuer New York, N. Y.
Vassar College Residence Hall	Poughkeepsie, N. Y.	Gilbane Bldg. Co. Providence, R. I.	Eero Saarinen & Assoc. Bloomfield Hills, Mich.
Benedictine Hosp. Nurses Residence	Kingston, N. Y.	Skinner & Cook Roselle Park, N. J.	Henry V. Murphy Brooklyn, N. Y.
Penn State Univ.	State College, Pa.	Virginia Eng. Co. Newport News, Va.	Harbeson, Hough, Livingston & Larson Philadelphia, Pa.
Syracuse Univ.	Syracuse, N. Y.	Wm. C. Pahl Constr. Syracuse, N. Y.	King & King Syracuse, N. Y.
Albany Teachers College	Albany, N. Y.	Sano Rubin Albany, N. Y.	Harold O. Fullerton, Albany
Univ. of Rochester	Rochester, N. Y.	Saucke Bros. Rochester, N. Y.	Waasdorp & Northrup Rochester, N. Y.

COLLEGE BUILDINGS

JOB	LOCATION	CONTRACTOR	ARCHITECT
Potsdam State Teachers College Bldg. 10 Main	Potsdam, N. Y.	Mutual Constr. New York, N. Y.	Archibald F. Gilbert New York, N. Y.
St. Pauls School Auditorium	Concord, N. H.	E. W. Howell & Co., N. Y.	Gugler, Kimball & Husted, N. Y.
Syracuse University Law School Bldg.	Syracuse, N. Y.	W. J. Burns Co. Syracuse, N. Y.	Rich & Conn, N. Y.

RELIGIOUS BUILDINGS

JOB	CONTRACTOR	LOCATION	ARCHITECT
St. John Episcopal Church	Massena, N. Y.	Oswald Constr. Massena, N. Y.	Hoyle Doran & Berry Boston, Mass.
Temple Gates of Heaven	Schenectady, N. Y.	Pioneer Constr. Schenectady, N.Y.	Edgar A. Tafel New York, N. Y.
Temple Beth El	Poughkeepsie, N. Y.	S. H. Miller Constr. Poughkeepsie, N. Y.	Bertram Lee Whinston Stamford, Conn.
Temple Israel	Albany, N. Y.	Sano Rubin Constr. Albany, N. Y.	Leon M. Einhorn Albany, N. Y.
Eighth Church of Christ Scientist	New York, N. Y.	Consolidated Constr. New York, N. Y.	Charless D. Faulkner Chicago, Ill.
Mt. Alvernia Seminary	Wappingers Falls, N. Y.	Frank Angellilli Yonkers, N. Y.	Vincent S. Todaro Brooklyn, N. Y.

HOSPITALS

JOB	LOCATION	CONTRACTOR	ARCHITECT
Albany Hospital	Albany, N. Y.	Walter Kidde New York, N. Y.	Schmidt, Garden & Erickson, Chicago
Memorial Hospital of Greene Co.	Catskill, N. Y.	I & O A Slutzky Hunter, N. Y.	Cannon, Thiele Betz & Cannon Niagara Falls
Hudson River State Hospital	Poughkeepsie, N. Y.	Merritt-Chapman & Scott, N. Y.	State Architect Albany, N. Y.
St. Elizabeth Hospital	Utica, N. Y.	Mancuso Bros. Utica, N. Y.	Wm. F. Shorn New York, N. Y.
Mary Imogene Bassett Hospital	Cooperstown, N. Y.	George A. Fuller New York, N. Y.	York & Sawyer New York, N. Y.

BANKS

JOB	LOCATION	CONTRACTOR	ARCHITECT
Federation Bank & Trust Co.	Flushing, N. Y.	Navo Constr. Corp. Brooklyn, N. Y.	Kelly & Gruzen New York, N. Y.
First National Bank	Poughkeepsie, N. Y.	W. W. Kingston Poughkeepsie	S. W. C. & F. Schenectady, N. Y.
National Commercial Bank & Trust Co.	Hudson, N. Y.	Thomas Bratton Bldg. Hudson, N. Y.	Gander, Gander & Gander Albany, N. Y.
Monroe Co. Savings Bank	Rochester, N. Y.	John Luther & Sons Rochester, N. Y.	Roland A. Yaeger Rochester, N. Y.

MISCELLANEOUS

JOB	LOCATION	CONTRACTOR	ARCHITECT
Texas Co. Labs	Beacon, N. Y.	William A. Berbusse New York, N. Y.	Voorhees, Walker Foley & Smith New York, N. Y.
Van Curley Hotel Add.	Schenectady, N. Y.	J. Lowe & Sons Schenectady	Holabird & Root & Burgee Chicago, Ill.

HOE CORPORATION

194 COTTAGE STREET • POUGHKEEPSIE • NEW YORK / GLOBE 2-4400



SCHWERD

quality
wood columns

the standard of quality since 1860

SCHWERD

Since 1860, the A. F. Schwerd Manufacturing Company has contributed wood columns to American Architecture. Schwerd columns are not only esthetically and mathematically correct, but their durability is proved by the continued excellent condition of installations after years of exposure to the most severe climatic conditions. Our careful attention to detail has made "Schwerd Quality Columns" known throughout the country.

Schwerd columns are durable

Wood columns are constructed by gluing together wood staves. Our 100 years of experience in manufacturingg wood columns has proven that the durability of a wood column depends upon the strength of the joint, and the quality and thickness of the wood. The strength of a glued wood joint depends upon three major factors: The quality and strength of the glue; the area of the surfaces in contact; and sufficient pressure to force the glue into the wood and squeeze out all excess glue, leaving no pockets of coagulated, uncompressed glue.

Schwerd column construction was developed to meet each specific requirement. The wood is the best quality, thoroughly seasoned Northern White Pine, the glue is of the highest quality. Special stave-making machines developed by Schwerd, precisely shape, taper, and tongue and groove the staves. The chief function of the tongue and groove, although it increases the area of the surface in contact, is to aid in the exact alignment and assembly of the staves in columnar form. The result, when the staves are glued together, is a shaft which has the proper taper and entasis built-in. The finished column is *equally heavy* at any point in its length; the lathe turning operation removes only the roughness of the lumber.

Schwerd patented clamps, compressing the shaft with 5,000 pounds pressure, force the glue into the wood and squeeze the excess out. In subsequent operations of drying, turning, fluting, finishing, painting and shipping, the pride of craftsmanship and skilled techniques acquired by 100 years of specialized experience is applied.

The resulting product is a "Schwerd Quality Column," specified by architects with complete confidence.

custom design available

We have a superior, complete line of standard columns and pilasters. If the Architect wishes to use his own design, we have the facilities for production, and welcome an opportunity to cooperate. Both standard and detail columns can be furnished from 4" to 50" in diameter, and up to 40' in length with matching pilasters.

material—for exterior columns and pilasters is thoroughly seasoned, Northern White Pine, which we believe is the best lumber available. Interior columns and pilasters are made of hardwoods as specified for natural finish; kiln-dried Poplar for paint finish. All exterior columns are treated with Wood Life preservative; 20" diameter and over are painted inside with black asphaltum.

thickness of stock

6" to 20" dia.—plain and fluted shaft—2" staves
21" to 28" dia.—plain and fluted shaft—2½" or 3" staves
29" to 40" dia.—plain and fluted shaft—3" staves
40" and up —plain and fluted shaft—4" staves

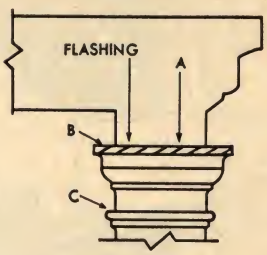
ventilation—all columns are shipped provided with ventilation at the bottom.

ventilated wood plinths—are supplied on all exterior columns unless otherwise specified.



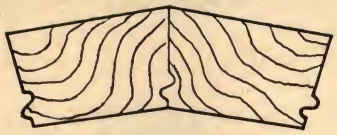
ventilated metal plinths—Schwerd cast iron or aluminum ventilated plinths incorporating a raised water table are recommended for all exterior columns and pilasters resting on masonry. They prevent moisture from being pulled up into the column and allow air to circulate up through the shaft.

lead ventilating pads—¼", ½", or ¾" thick as specified are recommended to be applied with monel nails to the bottom of Greek Doric column shafts. Also for use on the bottom of turned bases resting on masonry plinths. As each installation is different, ventilation at the top is the responsibility of the contractor on the job. The best method is to vent directly up into the soffit (A), provided it in turn is vented to the outside, or beside the plate (B) on the side facing the building. If this is impossible or impractical, holes can be bored above the neck mold (C) on the side facing the building.

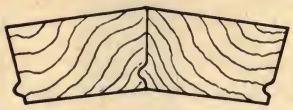


cap flashing—16 oz. copper, or other material as specified is formed and secured with only enough tacks to hold it in place for shipment. This facilitates *breaking* on the job to provide proper ventilation.

superior joints—one hundred years of experience have resulted in these two simple effective joints which assure exact alignment of the staves, so that the finished, properly glued joint, is actually stronger than the lumber itself.



for wood staves 3" thick and over



for wood staves up to 2" thick (nominal)

contractor responsibility—store columns in a dry place until they can be installed. Do not store in a cellar or newly plastered building, and never lay directly on the ground. If they must be stored outside, lay on bearing timbers and protect with waterproof cover. Immediately after erection, give all columns a coat of white lead and oil paint and follow with two additional coats as soon as possible.

ordering or requesting quotations

A. For standard design (shown in this catalog), state the following:

1. Catalog number, quantity of columns and pilasters, and whether for exterior or interior use.
2. Overall length including cap and base (bottom of "M" to top of "E"). Column diameter at bottom of shaft (D), and top of shaft (O). Width of pilasters at bottom of shaft (D), and top of shaft (O), and depth of return to wall.
3. Catalog number and name of ornamental capital, if desired.
4. Whether wood, cast iron, aluminum ventilated plinths, or lead pads are desired.

B. For custom design (not shown in this catalog), submit drawings of columns and pilasters, and supply all information above.

specification—"All columns and pilasters shall be manufactured by the A. F. Schwerd Manufacturing Co., 3215 McClure Ave., Pittsburgh, Pa., according to their design number ..... (If a custom design is desired, say "according to Architect's full size details").

Exterior columns shall be made of ..... inch stock (here specify thickness required) Northern White Pine. (For interior columns specify lumber desired.) All joints shall be glued under pressure using the best quality glue. Exterior columns shall be Wood-Life-treated and primed with two coats of paint by the manufacturer.

All capitals shall be flashed with ..... (specify 16 oz. copper or other material). (If ornamental capitals are required, give name and catalog number.) All plinths shall be ..... (Specify ventilated wood, cast iron or aluminum). If square plinths are not furnished by manufacturer, specify lead ventilating pads, if desired.) Columns shall be stored and erected according to manufacturer's instructions."



Library Building, University of Maryland, College Park, Maryland, 18 detail 36" x 29', Henry Powell Hopkins, Architect, Baltimore, Maryland.

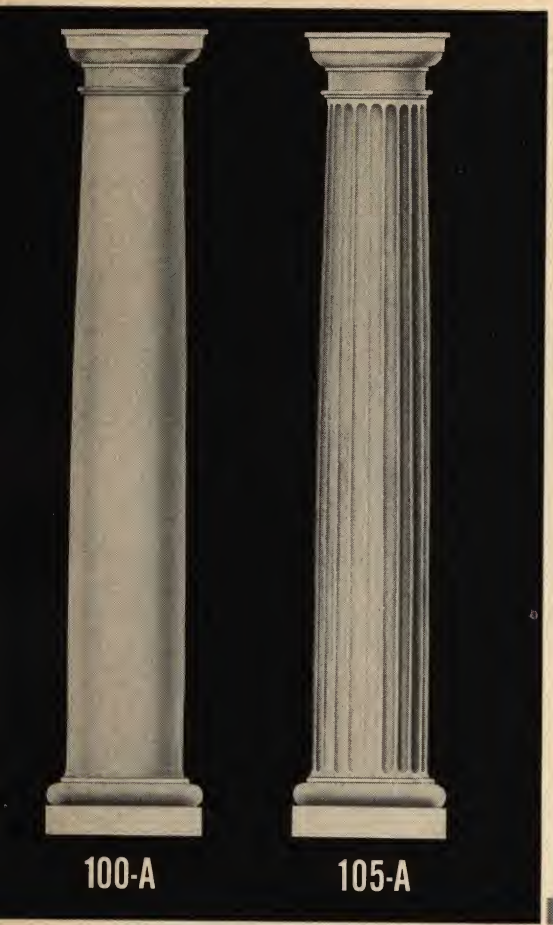


Williams College, Baxter Hall, Williamstown, Mass. 17 detail 21" x 13', Perry Shaw & Hepburn, Kehoe and Dean, Architects, Boston, Mass.

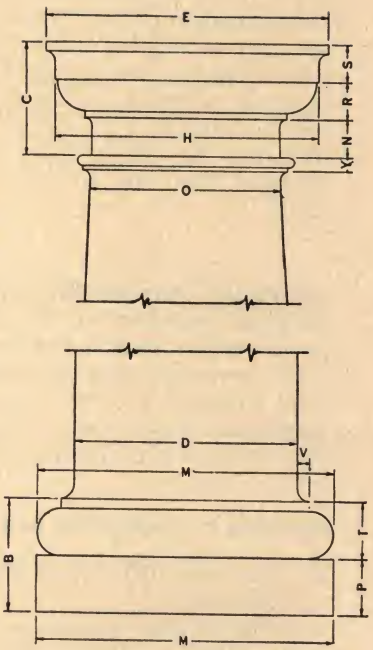


First Presbyterian Church, Johnson City, Tenn. 16 detail 24" x 24', Barber and McMurry, Architects, Knoxville, Tenn.

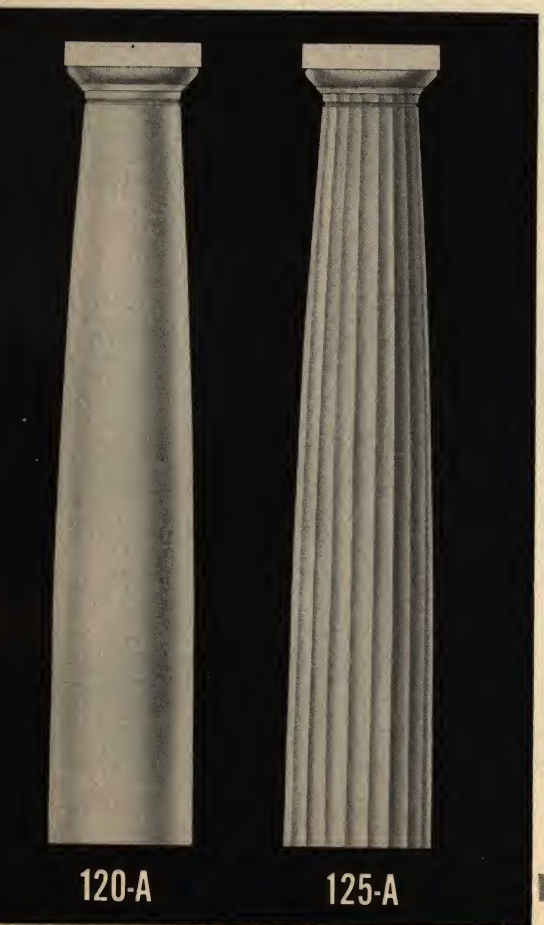
TUSCAN ORDER



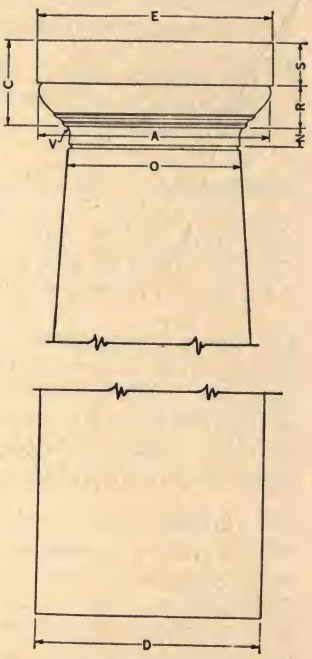
plan type	catalog no. plain	catalog no. fluted	plan type	catalog no. plain	catalog no. fluted
A	100-A	105-A	I	100-I	105-I
B	100-B	105-B	J	100-J	105-J
C	100-C	105-C	K	100-K	105-K
D	100-D	105-D	L	100-L	105-L
E	100-E	105-E	M	100-M	105-M
F	100-F	105-F	N	100-N	105-N
G	100-G	105-G	O	100-O	105-O
H	100-H	105-H			



GREEK DORIC ORDER



plan type	catalog no. plain	catalog no. fluted	plan type	catalog no. plain	catalog no. fluted
A	120-A	125-A	I	120-I	125-I
B	120-B	125-B	J	120-J	125-J
C	120-C	125-C	K	120-K	125-K
D	120-D	125-D	L	120-L	125-L
E	120-E	125-E	M	120-M	125-M
F	120-F	125-F	N	120-N	125-N
G	120-G	125-G	O	120-O	125-O
H	120-H	125-H			



all dimensions in inches

diameter at		total height of			cap						base			
					height				breadth		height		breadth	
base	neck	cap and base	cap	base	square	round			square		square	round	round and square	cove
D	O	C+B	C	B	S	R	N	Y	E	H	P	T	M	V
6	5	6	3	3	1	1	1	3/8	7 1/2	7	1 1/2	1 1/2	8	3/8
7	5 13/16	7	3 1/2	3 1/2	1 3/16	1 3/16	1 1/8	7/16	8 3/4	8 3/16	1 3/4	1 3/4	9 3/8	7/16
8	6 11/16	8	4	4	1 5/16	1 5/16	1 3/8	1/2	10	9 5/16	2	2	10 5/8	1/2
9	7 1/2	9	4 1/2	4 1/2	1 1/2	1 1/2	1 1/2	9/16	11 1/4	10 1/2	2 1/4	2 1/4	12	9/16
10	8 5/16	10	5	5	1 11/16	1 11/16	1 5/8	5/8	12 1/2	11 11/16	2 1/2	2 1/2	13 3/8	5/8
11	9 3/16	11	5 1/2	5 1/2	1 13/16	1 13/16	1 7/8	11/16	13 3/4	12 13/16	2 3/4	2 3/4	14 3/8	11/16
12	10	12	6	6	2	2	2	3/4	15	14	3	3	16	3/4
13	10 13/16	13	6 1/2	6 1/2	2 3/16	2 3/16	2 1/8	13/16	16 1/4	15	3 1/4	3 1/4	17 3/8	13/16
14	11 5/8	14	7	7	2 5/16	2 5/16	2 3/8	7/8	17 1/2	16 5/16	3 1/2	3 1/2	18 3/8	7/8
15	12 1/2	15	7 1/2	7 1/2	2 1/2	2 1/2	2 1/2	15/16	18 3/4	17 1/2	3 3/4	3 3/4	20	15/16
16	13 5/16	16	8	8	2 11/16	2 11/16	2 5/8	1	20	18 11/16	4	4	21 3/16	1
18	15	18	9	9	3	3	3	1 1/8	22 1/2	21	4 1/2	4 1/2	24	1 1/8
20	16 5/8	20	10	10	3 5/16	3 5/16	3 3/8	1 1/4	25	23 5/16	5	5	26 11/16	1 1/4
22	18 3/8	22	11	11	3 5/8	3 5/8	3 3/4	1 3/8	27 1/2	25 11/16	5 1/2	5 1/2	29 1/4	1 3/8
24	20	24	12	12	4	4	4	1 1/2	30	28	6	6	32	1 1/2
26	21 5/8	26	13	13	4 5/16	4 5/16	4 3/8	1 5/8	32 1/2	30 5/16	6 1/2	6 1/2	34 3/4	1 5/8
23	23 1/4	28	14	14	4 5/8	4 5/8	4 3/4	1 3/4	35	32 11/16	7	7	37 5/16	1 3/4
30	25	30	15	15	5	5	5	1 7/8	37 1/2	35	7 1/2	7 1/2	40	1 7/8
32	26 5/8	32	16	16	5 5/16	5 5/16	5 3/8	2	40	37 5/16	8	8	42 3/4	2
34	28 5/16	34	17	17	5 5/8	5 5/8	5 3/4	2 1/8	42 1/2	39 11/16	8 1/2	8 1/2	45 5/16	2 1/8
36	30	36	18	18	6	6	6	2 1/4	45	42	9	9	48	2 1/4



Quintin Little Residence, Ardmore, Oklahoma, 8 detail columns, 27" x 20', Robert D. Goodwin, Architect, Dallas, Texas.



"White Columns," WSB Radio & T.V. Station, Atlanta, Georgia, 8 detail 22" x 22', Design and Construction, The Austin Company, Cleveland, Ohio.

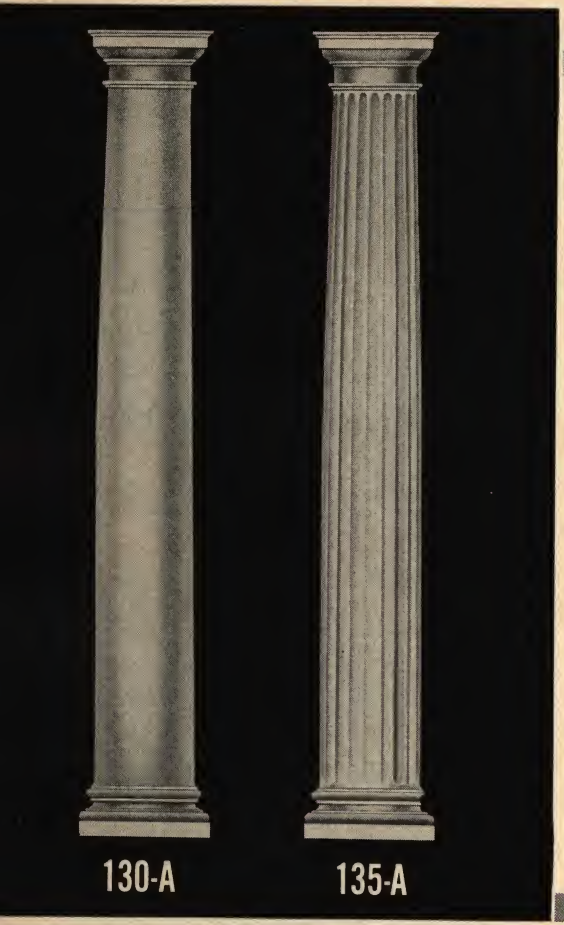
all dimensions in inches

diameter at		cap						
		height				breadth		
base	neck	total	square	round	round	square	round	cove
D	O	C	S	R	N	E	A	V
6	4 1/2	2 1/4	1 1/8	1 1/8	1/2	6 3/8	6 1/4	3/16
7	5 1/4	2 5/8	1 5/16	1 5/16	5/8	7 3/8	7 1/4	1/4
8	6	3	1 1/2	1 1/2	3/4	8 3/8	8 1/4	5/16
9	6 3/4	3 3/8	1 11/16	1 11/16	13/16	9 3/8	9 1/4	3/8
10	7 1/2	3 3/4	1 7/8	1 7/8	7/8	10 1/2	10 3/8	3/8
11	8 1/4	4 1/8	2 1/16	2 1/16	15/16	11 1/2	11 3/8	7/16
12	9	4 1/2	2 1/4	2 1/4	1	12 1/2	12 3/8	7/16
13	9 3/4	4 7/8	2 7/16	2 7/16	1 1/8	13 1/2	13 3/8	1/2
14	10 1/2	5 1/4	2 5/8	2 5/8	1 1/4	14 3/8	14 3/8	1/2
15	11 1/4	5 5/8	2 13/16	2 13/16	1 3/8	15 5/8	15 3/8	1/2
16	12	6	3	3	1 1/2	17	16 1/2	9/16
18	13 1/2	6 3/4	3 3/8	3 3/8	1 5/8	18 7/8	18 3/8	5/8
20	15	7 1/2	3 3/4	3 3/4	1 3/4	20 7/8	20 3/8	11/16
22	16 1/2	8 1/4	4 1/8	4 1/8	1 7/8	23	22 3/4	3/4
24	18	9	4 1/2	4 1/2	2	25	24 3/4	13/16
26	19 1/2	9 3/4	4 7/8	4 7/8	2 1/4	27	26 3/4	7/8
28	21	10 1/2	5 1/4	5 1/4	2 1/2	29 1/4	28 7/8	15/16
30	22 1/2	11 1/4	5 5/8	5 5/8	2 3/4	31 1/4	30 3/4	1
32	24	12	6	6	3	34	33	1 1/8
34	25 1/2	12 3/4	6 3/8	6 3/8	3 1/8	35 5/8	34 1/8	1 1/4
36	27	13 1/2	6 3/4	6 3/4	3 1/4	37 3/4	37 1/8	1 3/8

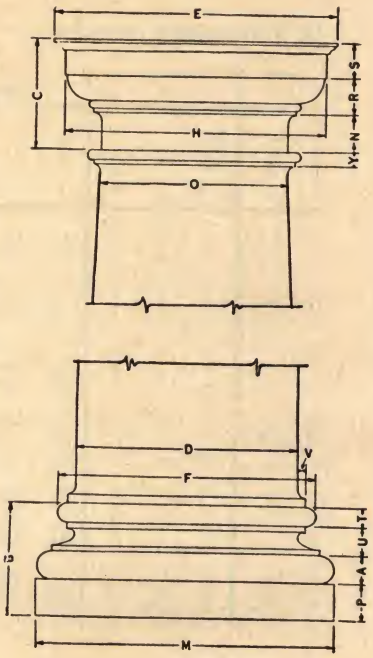


Allison Memorial Methodist Church, Carlisle, Pennsylvania, 8 detail 32" x 26', A. Hensel Fink, Architect, Philadelphia, Pennsylvania.

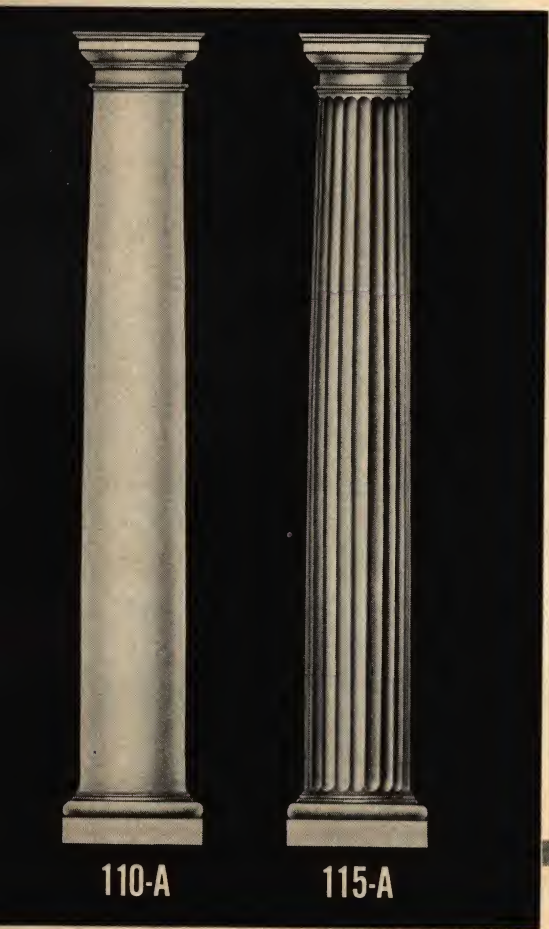
DORIC CAP AND ATTIC BASE



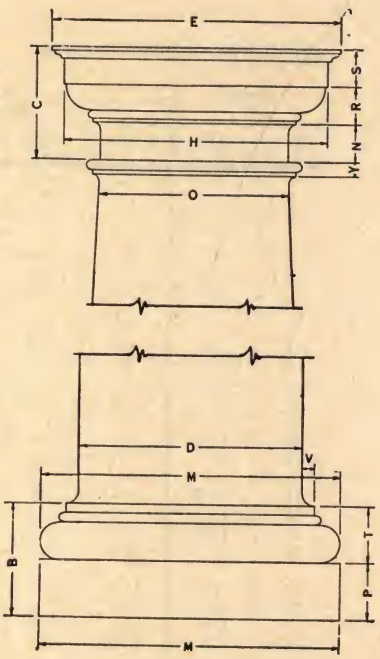
plan type	catalog no. plain	catalog no. fluted	plan type	catalog no. plain	catalog no. fluted
A	130-A	135-A	I	130-I	135-I
B	130-B	135-B	J	130-J	135-J
C	130-C	135-C	K	130-K	135-K
D	130-D	135-D	L	130-L	135-L
E	130-E	135-E	M	130-M	135-M
F	130-F	135-F	N	130-N	135-N
G	130-G	135-G	O	130-O	135-O
H	130-H	135-H			



ROMAN DORIC ORDER



plan type	catalog no. plain	catalog no. fluted	plan type	catalog no. plain	catalog no. fluted
A	110-A	115-A	I	110-I	115-I
B	110-B	115-B	J	110-J	115-J
C	110-C	115-C	K	110-K	115-K
D	110-D	115-D	L	110-L	115-L
E	110-E	115-E	M	110-M	115-M
F	110-F	115-F	N	110-N	115-N
G	110-G	115-G	O	110-O	115-O
H	110-H	115-H			



all dimensions in inches

diameter at		total height of			cap						base						
					height				breadth		height				breadth		
base	neck	cap + base	cap	base	square	round			square		square base	bottom round	middle round	top round	top round	bottom round and square	cove
D	O	C+B	C	B	S	R	N	Y	E	H	P	A	U	T	F	M	V
6	5	6	3	3	1	1	1	3/8	7 11/16	7	15/16	3/4	13/16	1/2	7	8	3/16
7	5 13/16	7	3 1/2	3 1/2	1 1/8	1 1/8	1 1/4	7/16	8 3/8	8 1/16	1 1/16	7/8	15/16	9/16	8 1/4	9 3/8	1/4
8	6 11/16	8	4	4	1 5/16	1 5/16	1 3/8	1/2	10 3/16	9 5/16	1 1/4	1	1 1/8	5/8	9 3/8	10 5/8	1/4
9	7 1/2	9	4 1/2	4 1/2	1 1/2	1 1/2	1 1/2	9/16	11 1/2	10 1/2	1 3/8	1 1/8	1 1/4	3/4	10 9/16	12	1/4
10	8 5/16	10	5	5	1 5/8	1 5/8	1 3/4	5/8	12 3/4	11 9/16	1 5/8	1 1/4	1 3/8	3/4	11 3/4	13 3/8	3/8
11	9 5/16	11	5 1/2	5 1/2	1 13/16	1 13/16	1 7/8	11/16	14 1/16	12 13/16	1 3/4	1 3/8	1 3/8	1	13 1/2	14 5/8	3/8
12	10	12	6	6	2	2	2	3/4	15 5/16	14	1 7/8	1 1/2	1 5/8	1	14	16	3/8
13	10 13/16	13	6 1/2	6 1/2	2 1/8	2 1/8	2 1/4	13/16	16 9/16	15 1/16	2	1 5/8	1 13/16	1 1/16	15 1/4	17 3/8	1/2
14	11 5/8	14	7	7	2 5/16	2 5/16	2 3/8	7/8	17 3/4	16 1/4	2 1/8	1 3/4	2	1 1/8	16 1/2	18 5/8	1/2
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22	18 3/8	22	11	11	3 5/8	3 5/8	3 3/4	1 3/8	28 1/8	25 5/8	3 1/2	2 3/4	2 7/8	1 7/8	27	29 1/4	7/8
24	20	24	12	12	4	4	4	1 1/2	30 5/8	28	3 3/4	3	3 1/4	2	28	32	7/8
26	21 5/8	26	13	13	4 5/16	4 5/16	4 3/8	1 5/8	33 1/8	30 1/4	4	3 1/4	3 5/8	2 1/8	30 1/2	34 3/4	1
28	23 1/4	28	14	14	4 5/8	4 5/8	4 3/4	1 3/4	35 1/2	32 1/2	4 1/4	3 1/2	4	2 1/4	33	37 1/4	1
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32	26 5/8	32	16	16	5 5/16	5 5/16	5 3/8	2	40 3/4	37 1/4	5	4	4 3/8	2 3/8	37 1/2	42 1/2	1 1/4
34	28 5/16	34	17	17	5 5/8	5 5/8	5 3/4	2 1/8	43 7/16	39 9/16	5 1/4	4 1/4	4 5/8	2 1/8	40	45 1/8	1 3/8
36	30	36	18	18	6	6	6	2 1/4	46	42	5 1/2	4 1/2	5	3	42	48	1 1/2

all dimensions in inches

diameter at		total height of			cap						base			
					height				breadth		height		breadth	
base	neck	cap and base	cap	base	square	round			square		square	round	round and square	cove
D	O	C+B	C	B	S	R	N	Y	E	H	P	T	M	V
6	5	6	3	3	1	1	1	3/8	7 11/16	7	1 1/2	1 1/2	8	3/8
7	5 13/16	7	3 1/2	3 1/2	1 1/8	1 1/8	1 1/4	7/16	8 3/8	8 1/16	1 3/4	1 3/4	9 3/8	7/16
8	6 11/16	8	4	4	1 5/16	1 5/16	1 3/8	1/2	10 3/16	9 5/16	2	2	10 5/8	1/2
9	7 1/2	9	4 1/2	4 1/2	1 1/2	1 1/2	1 1/2	9/16	11 1/2	10 1/2	2 1/4	2 1/4	12	9/16
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18	15	18	9	9	3	3	3	1 1/8	23	21	4 1/2	4 1/2	24	1 1/8
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22	18 3/8	22	11	11	3 5/8	3 5/8	3 3/4	1 3/8	28 1/8	25 5/8	5 1/2	5 1/2	29 1/4	1 3/8
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34	28 5/16	34	17	17	5 5/8	5 5/8	5 3/4	2 1/8	43 7/16	39 9/16	8 1/2	8 1/2	45 1/4	2 1/8
36	30	36	18	18	6	6	6	2 1/4	46	42	9	9	48	2 1/4

ornamental capitals

Made of a specially prepared, hard, durable composition, they will withstand the elements as well as other exterior millwork. Stock models shown below are manufactured to correct proportions. Special models can be made to Architect's details. Load-bearing wood plugs, which carry the weight from above, will be furnished by us.



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No. 141 Roman Ionic



No. 142 Greek Ionic



No. 143 Roman Doric



No. 144 Modern Ionic



No. 150 Roman Corinthian



No. 151 Composite



No 152 Temple of Winds



No. 153 Modern Ionic with Necking



No. 154 Greek Erechtheum

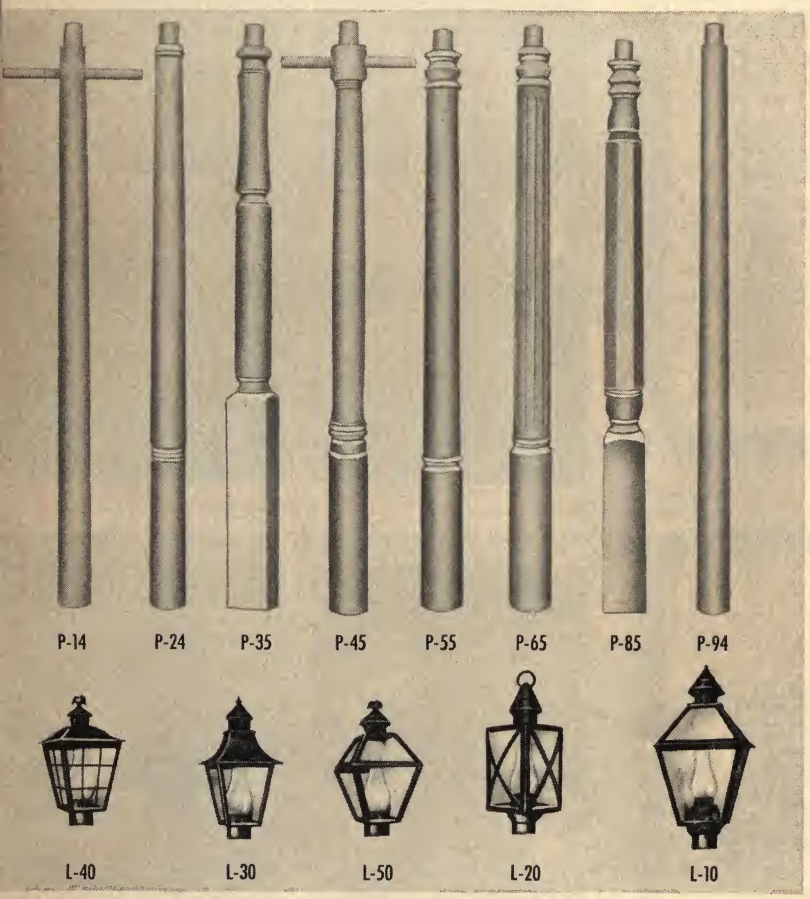
SCHWERD wood columns

turned wood posts

Posts are made from sections of Northern White Pine, accurately milled, glued together under pressure, and hand turned. Ample space is provided throughout the height of the post for either electric or gas installation. Standard designs are shown; special designs can be furnished to Architect's details.

FINISH: All posts are treated with Wood-Life preservative. Posts are primed two coats of paint, and the lower 18" is dipped in asphaltum paint, as further protection.

DIMENSIONS: All posts are 8' long; special heights can be furnished on request. Diameters of the round sections vary from 4" to 5½". Lantern connection is 3"; 3½" supplied on request.



copper lanterns

Lanterns are made from extra heavy copper. Glass panels are clear glass, and glass chimneys have an acid-etched finish.

FINISH: Standard finish is a durable black. Special antique copper finish furnished on request.

DIMENSIONS: All lanterns have a 3" collar connection. They range in size from 9" to 13½" square, and from 17" to 26" in height.

some recent installations of Schwerd columns

ALABAMA, Jacksonville
First Baptist Church, 4 detail 34" x 20'
Lawrence S. Whitten, Architect, Birmingham, Ala.

CONNECTICUT, Wallingford
The Choate School, 6 detail 26" x 18'
Perry, Shaw, Hepburn & Dean, Architects, Boston, Mass.

FLORIDA, DeLand
First Presbyterian Church, 4 detail 24" x 21'
George H. Spohn, Architect, Winter Park, Fla.

MASSACHUSETTS, Foxboro
St. Mary's Church, 4 detail 20" x 20'
Arthur G. Manaselian & Associates, Architects, Boston, Mass.

MASSACHUSETTS, New Bedford
New Bedford Superior Courthouse, 4 detail 36" x 24'
Bishop & Hackett, Architects, New Bedford, Mass.

MASSACHUSETTS, Worcester
Bethany Congregational Church, 4 detail 18" x 23'
John S. Bilzerian, Architect, Worcester, Mass.

NEW HAMPSHIRE, Exeter
St. Michael's Church, 4 detail 20" x 18'
John P. Heffernan, Architect, Boston, Mass.

OHIO, Hubbard
First Presbyterian Church, 4 detail 15" x 17'
Walter H. Mallorie, Architect, Sharon, Pa.

OHIO, Rocky River
Rocky River Methodist Church, 4 detail 27" x 23'
Small, Smith, Reeb & Draz, Architects, Cleveland, Ohio

PENNSYLVANIA, Allegheny County,
4 detail 27" x 26'
Westminister Presbyterian Church, Upper St. Clair Township
William C. Young, Architect, Pittsburgh, Pa.
Harold E. Wagoner, Consulting Architect, Philadelphia, Pa.

PENNSYLVANIA, Williamsport,
4 detail 12" x 18', 4 detail 10" x 12'
Student's Activities Building, Lycoming College
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VIRGINIA, Richmond
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VIRGINIA, Virginia Beach
First Presbyterian Church, 4 detail 24" x 23'
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WEST VIRGINIA, Salem
Dormitory, Girl's Industrial School, 4 detail 22" x 17'
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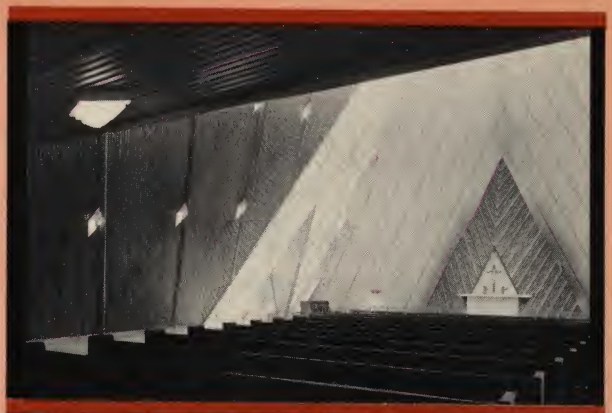
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THE "HOW" OF PRESSURE TREATMENT

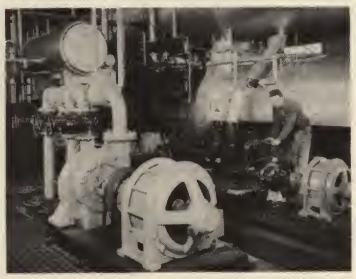
Maximum penetration of the preservative is absolutely necessary to protect lumber against decay or termite attack. Brush, dip or other surface treatments only coat the wood and at best give limited, temporary protection. Only the pressure-treating process forces the preservative deep into the wood cells protecting all of the wood subject to attack. Strength, resiliency, or other natural qualities of the wood are not impaired. Below is a pictorial story of how long service life is imparted to lumber by the pressure-treating process.



A charge of lumber is pushed into a huge steel cylinder made to withstand high pressures.



The cylinder door is bolted shut and a vacuum in excess of 22″ mercury is pulled to evacuate air from the wood cells and increase receptivity to the treating solution.



When the cylinder is full of solution, the vacuum is broken and more solution is forced into the cylinder to develop a pressure in excess of 150 pounds per square inch.



Pressure is held until the solution is forced deep into the wood cells. The duration of the pressure phase depends on the species of wood being treated and the retention desired.

TYPES OF WOOD PRESERVATIVES...

There are five general classes of wood preservatives:

1. **CREOSOTE PRESERVATIVES**
2. **WATER-BORNE SALT PRESERVATIVES**
3. **PENTA-BASE PRESERVATIVES**
4. **FIRE-PROTECTIVE PRESERVATIVES**
5. **RESIN PRESERVATIVES**

Selection of any one is dependent on the end use of the product and the conditions to which the wood will be exposed. Because Koppers specializes in all five it can, without bias, recommend the right preservative to meet specific conditions.

FOR YOUR INFORMATION

TECHNICAL SERVICE

Your local Koppers Sales Office or Koppers Technical Department, Orrville, Ohio (Murray 2-3015), will welcome your requests for assistance in determining the right wood preservative for all types of uses and all conditions of service. With over 50 years' experience in advising railroads, utilities and other large users of pressure-treated wood, Koppers can furnish you on request detailed information on the following uses of pressure-treated materials:

- **BUILDINGS, BINS, SHEDS**
  Columns—Doors—Flooring—Framework—Joists—Pile Foundations—Rafters—Roofing—Plank Siding—Sills—Sheathing—Sleepers—Stairs—Trusses—Window Frames
- **BRIDGES, TRESTLES, AND TIPPLES**
  Bracing—Caps—Cribbing—Pile Foundations—Ribbon Guards—Stringers—Ties—Trusses
- **FARM BUILDINGS AND FENCING**
  Barns—Hog Houses—Corn Cribs—Silos—Fences—Feeders—Posts—Rails—Poles
- **COOLING TOWERS**
  Fill-Drift Eliminators—Fandeck—Fan Stack—Inner Wall—Outer Wall—Louvers—Structural Framing
- **UTILITY MATERIALS**
  Poles—Cross Arms—Anchor Logs—Timbers—Lumber
- **PIERS, DOCKS, WHARVES**
  Bracing—Bulkheads—Caps—Floor—Pile Foundations—Stringers—Stairs—Posts—Railings—Walkways—Jetties
- **PLATFORMS**
  Flooring—Supports—Nailing Strips—Hand Rails
- **SIGN BOARDS**
  Boards—Posts—Braces—Framework Lumber—Poles
- **TANKS, SUMPS AND VATS**
  Lagging for Insulation—Pile Foundations—Supports—Sills—Structural Timbers—Planks—Staves—Septic Tanks
- **TRANSPORTATION MATERIALS**
  Cross Ties—Switch Ties—Crossing Panels—Car and Truck Lumber
- **RECREATIONAL FACILITIES**
  Picnic Tables—Benches—Steps—Fencing—Shelters—Signs—Guard Posts and Rails—Cabins—Bleachers, etc.

PLANT SERVICE

Koppers has thirty-five modern pressure-treating plants throughout the country, offering pressure-treated wood and treating service. Transit rates are available for economical movement from lumber producing areas to final destinations. In addition to up-to-date pressure-treating equipment, facilities are available for the conditioning and preframing of lumber prior to treatment and when required, for drying wood before and after treatment.

1 CREOSOTE PRESERVATIVES

Creosote is the oldest wood preservative known. No other preservative has yet demonstrated, through service, the durability, dependability and general utility of creosote. Creosote and creosote-coal tar solutions are the only preservatives that provide satisfactory protection in salt water against marine borer attack. Creosote will not harm humans or animals but destroys decay fungi and insects. The only way to assure absolute protection is through pressure treatment. Creosote preservatives are recommended in these applications:

FOR USE IN

- FOUNDATION PILES
- BRIDGE TIMBERS
- MUD SILLS
- FENCE POSTS
- WHARVES
- BOATS
- CROSS TIES
- PLATFORMS
- CROSSING TIMBERS
- RAILS
- DECKING
- MARINE PILING
- DOCKS
- CORRALS
- BARNS & ANIMAL SHELTERS
- TIMBER CRIBBING
- POLES
- WAREHOUSES

and other uses

ADVANTAGES

Pressure-creosoted lumber has 4 to 8 times the service life of untreated wood. Savings in replacement costs over the years will repay many times over the cost of pressure treatment. Maintenance costs are thus lowered, and most important of all, failure of wood members and weakening of structures due to termites and decay are eliminated.

SPECIAL CHARACTERISTICS

Pressure-creosoted wood should be used when the need for long service life is paramount and where such special properties as absence of odor, color or oil-free surface for certain types of painting is not considered important. For such applications other types of preservatives should be specified.



Complete stocks of millions of board feet of Koppers pressure-treated lumber—strategically located in 35 plants throughout the country.

2 WATER-BORNE SALT PRESERVATIVES

There are two major water-borne salt preservative treatments available from Koppers. They are Erdalith® and Wolman® salts. Erdalith preservative is primarily used to treat lumber for cooling tower construction to combat serious decay problems which otherwise arise from the use of untreated wood. Wolman preservative salts are widely used in Koppers and licensee treating plants throughout this country and in the tropics.

Wolmanized® lumber (any species of wood pressure-treated with Wolman salts) is the clean, treated lumber most frequently specified by architects because of its proven long service in residential construction and in all types of industrial and commercial applications. More complete information on Wolmanized treated lumber is to be found in Sweets' File or can be obtained by writing to the Wolman Preservative Department, Koppers Company, Inc., 750 Koppers Bldg., Pittsburgh 19, Pennsylvania.

FOR USE IN

- FOOD PROCESSING PLANTS
- FACTORIES
- HOMES
- STADIUMS
- BOARD WALKS
- GARAGES
- COOLING TOWERS
- PULP & PAPER MILLS
- ICE HOUSES
- TEXTILE MILLS
- FARM STRUCTURES
- BOX CAR DECKING
- SCHOOLS
- HOSPITALS
- CHURCHES
- BOARDWALKS
- BRIDGES & PIERS
- BOATS

ADVANTAGES

Wolmanized pressure-treated lumber provides lasting protection against decay and termites; it is clean and odorless. Wolmanized lumber is paintable and can readily be glued with any good adhesive, including the newer synthetic glues. The preservative salts are fiber-fixed in the wood and resist leaching under high humidities.

SPECIAL CHARACTERISTICS

Water-borne salt treated lumber should be kiln dried or air dried after treatment to a moisture content suited to the intended use, whether for painting or where shrinkage can be a serious fault. When treated lumber is cut on the job, concentrated preservative solution should be painted on cut surfaces.

3 PENTA-BASE PRESERVATIVES

These preservatives are insoluble in water, but are sufficiently soluble in light and heavy petroleum to make a treating solution. In recent years, penta in the heavier oils, has had increasing use for outdoor applications exposed to weather, decay and termites. Used with lighter, more volatile oil vehicles, water-repellent penta has been used widely for indoor applications, for sleepers in school gym floors, and for the treatment of hardwoods.

FOR USE IN

HEAVY OILS
- R. R. CAR DECKING
- LOADING PLATFORMS
- POLES AND CROSSARMS

LIGHT OILS
- STADIUM SEATS
- SIDING
- FENCING

ADVANTAGES

Wood, pressure-treated with Penta-Base Preservatives, offers positive protection against decay and insect attack. Koppers water-repellent formulations provide a surface that is free from oil and odor. Milled hardwoods and softwoods can be treated without fear of grain raising, checking or splitting.

SPECIAL CHARACTERISTICS

Wood, treated with Penta-Base Preservatives, is not recommended for marine use. Regular penta-treated forest products will become brown and blotchy when exposed to the weather; this condition will disappear after extended service. Lumber, treated with regular penta, will stain plaster and cannot be painted easily.

Forrest products pressure-treated with Koppers Water-Repellent Penta quickly bleaches to a driftwood gray when exposed to the weather. Koppers Water-Repellent Penta-treated materials can be painted readily.

4 FIRE-PROTECTIVE PRESERVATIVES

After a decade of intensive research, Koppers has developed NON-COM fire protected lumber, a non-combustible material that automatically provides a superior resistance to both *fire* and *flame* spread. Wood, pressure-impregnated with NON-COM, will not support combustion. NON-COM pressure-treated lumber will char slowly where flame touches it, but will confine the fire to its point of origin by checking the spread of flame.

NON-COM fire protected wood is:

LISTED: by the Underwriters' Laboratories, Inc. with a Fire Hazard Classification rating of 10-15 for both flame spread and fuel contribution with no evidence of significant progressive combustion in a 30-minute test duration.

APPROVED: by Factory Mutual Engineering Division and Factory Insurance Association as having met the requirements of a basically incombustible material.

CLASSIFIED: as an incombustible roof deck and support material by 17 Midwestern State Rating Bureaus and the State of Washington.

FOR USE IN

- INDUSTRIAL WAREHOUSES
- ROOF DECKS
- INTERIOR PARTITIONS
- STUDDING AND TRIM
- STRUCTURAL MEMBERS
- PALLETS
- WET PROCESS INDUSTRIES
- AIRPLANE HANGARS
- MUNITIONS PLANTS
- DOCKS AND WAREHOUSES

ADVANTAGES

NON-COM fire protected lumber and plywood is colorless, odorless, and can be painted. The chemicals pressure-impregnated into NON-COM lumber and plywood also provide decay and termite protection.

SPECIAL CHARACTERISTICS

When NON-COM treated lumber is to be used in places where high moisture content or shrinkage after installation would be a disadvantage, the lumber shall be kiln dried or air dried to a moisture content suited to the intended use. It is not recommended for outdoor use.

5 RESIN PRESERVATIVES

Koppers resin treatments impart special qualities to wood such as increased dimensional stability, hardness and resistance to abrasions and alkalis. KP-resin treated wood offers high acid resistance and is recommended where shrinkage or swelling are undesirable. "Kofural" treated materials are similar in features to KP-treated wood except that "Kofural" treated wood is resistant to alkaline conditions.

FOR USE IN

- TANKS
- DUCK BOARDS
- FILTER MEMBERS
- PATTERN LUMBER
- FLUMES
- VATS

and other uses

KOPPERS OFFERS THESE RESIN TREATMENTS

	KP	KOFURAL
Color	Tan	Black
Type of Resin	Thermosetting	Thermosetting
Resistance to Acids	Suitable for continuous contact	Suitable for continuous contact
Resistance to Alkali	Not recommended	Resistant
Dimensional Stability	Excellent—it reduces shrinkage and swellage of wood to one half that of untreated species.	Excellent—it reduces shrinkage and swellage of wood to one half that of untreated species.
Hardness	Increased 50-100%	Increased 50-100%
Resistance to insects and decay	Good	Good
Weight per cubic foot	40 lbs.	40 lbs.

HOW TO SPECIFY PRESSURE-TREATED WOOD

The following information is necessary when specifying and buying pressure-treated material:

A. Description of material; that is, lumber, posts, etc.
B. Species, size and grade.
C. Treatment specifications. Use Federal Specification TT-W-571c or American Wood Preservers' Association current treatment specifications. The two sets of specifications are essentially identical.
D. Preservative. Specifications are below. For the same preservative they are practically identical.
E. Type of exposure.
F. Preservative retention.

Preservative	Federal Spec.	AWPA Spec.	Other
Creosote	TT-W-556	P-1	ASTM D-390
Creosote Coal-Tar Solution	TT-W-566	P-2	ASTM D-391
Wolman* Salts	TT-W-573	P-5	ASTM D-1034
Pentachlorophenol	TT-W-570	P-8, P-9	MIL-P-906B
Erdalith* (Chromated Copper Arsenate)	TT-W-00550	P-5	
NON-COM (Federal Formulation #5)	MIL-C-2865		

*Reg. U.S. Pat. Off.

KOPPERS

KOPPERS COMPANY, INC.

WOOD PRESERVING DIVISION · PITTSBURGH 19, PA.

RECOMMENDED
FOR USE
WHEN THESE
CONDITIONS
EXIST

Process Moisture

Condensation

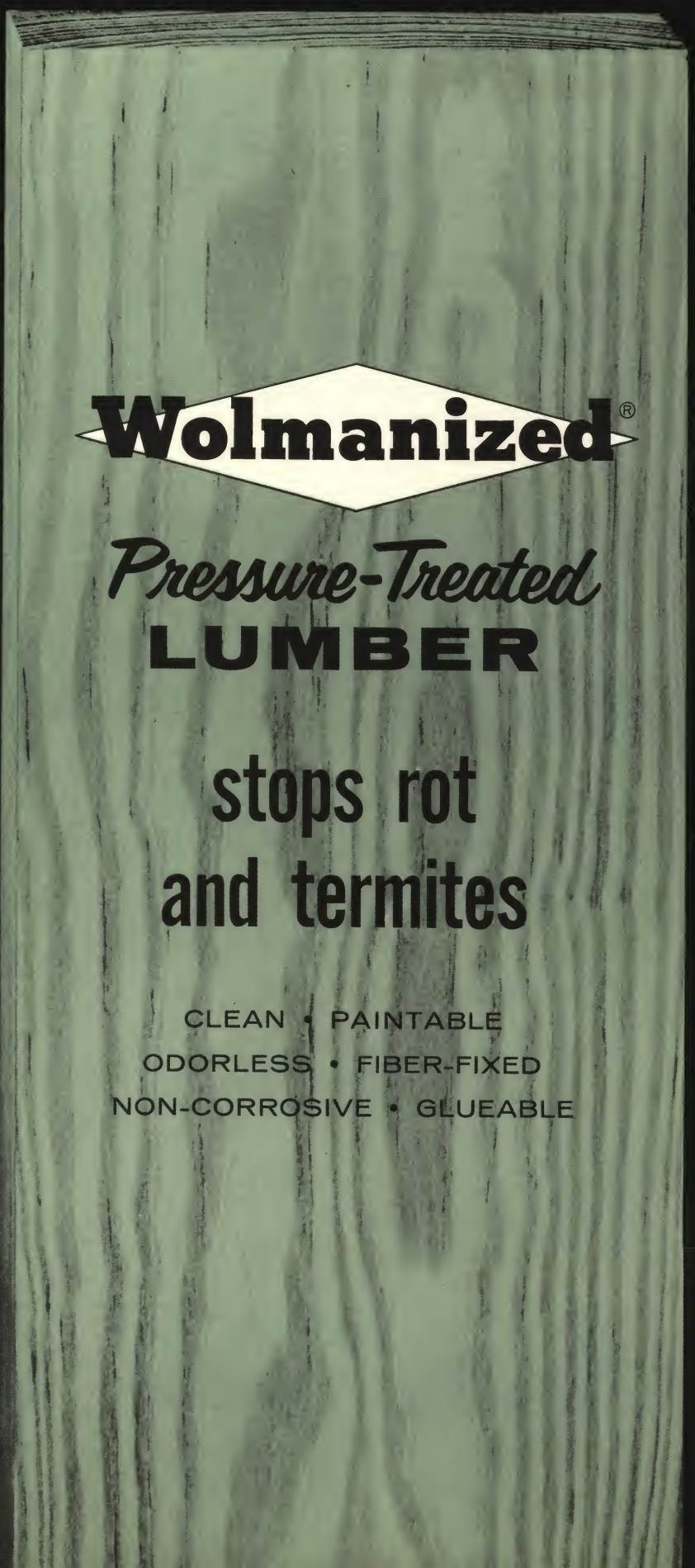
Masonry Contact

High Humidity

Water Contact

Ground Contact

IN RESIDENTIAL
COMMERCIAL
INDUSTRIAL
AND
INSTITUTIONAL
CONSTRUCTION



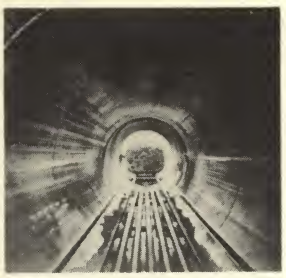
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what is WOLMANIZED LUMBER?

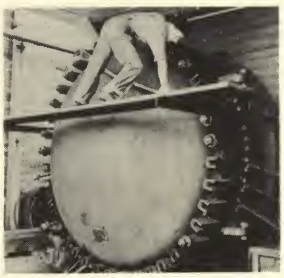
"Wolmanized" is a trade mark applied to any species of wood which has been treated by the full cell pressure-treating process with a solution of "Wolman"® preservative salts. By a vacuum-pressure process the preservative salts are forced deep into and through the wood cells to protect them from decay and insect attack. Wolmanized lumber is rot and termite resistant; clean; paintable; odorless; non-corrosive; glueable.

how is lumber PRESSURE-TREATED?

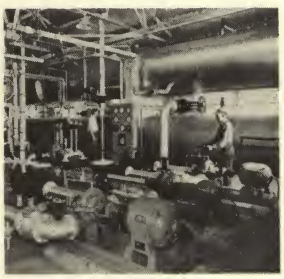
Pressure-treatment is a process of impregnating lumber using pressure up to 185 p.s.i. It is the only method of providing lumber with positive protection against rot-producing fungi and termites. Brushing, soaking or spraying are merely surface treatments which afford only limited, temporary protection. Below is the story of the pressure-treating process.



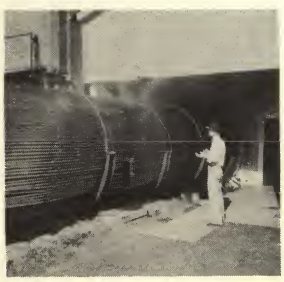
A charge of lumber is pushed into a huge steel cylinder constructed to withstand pressures to 250 p.s.i. Steam pipes on the floor heat the solution.



The cylinder is bolted shut and a vacuum of 24″ mercury is pulled to evacuate air from the wood cells and increase receptivity to the preservative solution.



A solution of "Wolman" salts, heated to 120° F. is admitted to the cylinder. When the cylinder is full of solution the vacuum is broken and a pressure of 185 p.s.i. is applied.



Pressure is held while the solution is forced deeply into the wood, the length of the pressure phase depending on the species of wood and the penetration desired.

how long will WOLMANIZED LUMBER offer termite and decay protection?

The first Wolmanized lumber installation in the United States —a textile dye house roof installed in 1924—is still in excellent condition after almost daily exposure to steam vapor. Case history records kept on Wolmanized lumber used in wet process installations, refrigerator plants, stadiums, schools, churches, and residential construction prove conclusively that Wolmanized lumber far outlasts untreated lumber. In many cases, added service is measured in decades.

is WOLMANIZED LUMBER costly to specify?

Wolmanized lumber is surprisingly low in cost. Needed only where moisture will promote the growth of decay or where termites are a hazard, it accounts for an average of only one-fifth of the total lumber used in a structure and adds approximately 1% to total building costs. Its longer service life repays its cost many times over.

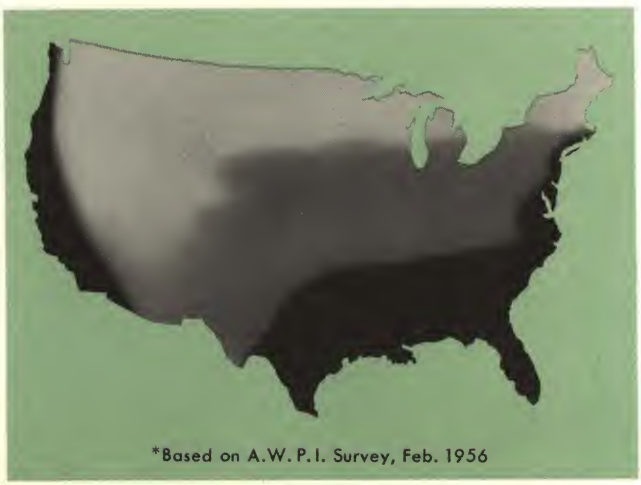
when should WOLMANIZED LUMBER be specified?

Where lumber may be exposed to rot or termite attack, pressure treatment with Wolman salts is necessary for protection and long service life. Wolmanized lumber is recommended for use where the following conditions exist:

- **PROCESS MOISTURE**
- **CONDENSATION**
- **MASONRY CONTACT**
- **HIGH HUMIDITY**
- **WATER CONTACT**
- **GROUND CONTACT**

Architects, engineers and builders have found that each new use for Wolmanized lumber suggests another one—a new way to obtain longer life at lower cost, from lumber.

AREAS OF TERMITE AND DECAY INFESTATION



*Based on A.W.P.I. Survey, Feb. 1956

TYPICAL APPLICATIONS...

1 WET PROCESS INDUSTRIES

Untreated lumber, exposed to water or moisture, inevitably builds up a moisture content that leads to early deterioration through the action of rot fungi. Wolmanized pressure-treated lumber provides low-cost, acid and fungi resistant construction material for the wet process industries. It provides longer maintenance-free life under conditions that cause concrete and gypsum to disintegrate and steel to corrode. Following are typical uses:



- ROOF PLANKS
- ROOF TRUSSES
- VENTILATORS
- VATS
- FLUMES
- TANKS
- SASH & FRAMES
- UNDERPINNING

Wolmanized lumber provides built-in protection against rot.

2 REFRIGERATION

Condensation of warm, moist air inside walls, floors and ceilings of cold storage plants and refrigerator rooms is absorbed by untreated lumber and creates a condition favorable to the growth of decay fungi. Lumber, pressure-treated with Wolman salts, resists wood rot and termites no matter how damp the air or wood surface may become, thus assuring long life of linings, sheathing and structural members. Some typical applications are:

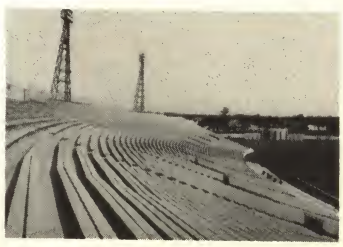


- DECKING
- SIDING
- JOISTS
- STUDS
- SILLS
- FLOORING
- POSTS
- SHELVING

For maintenance-free construction specify Wolmanized Lumber.

3 OUTDOOR & MARINE

Untreated lumber in outdoor installations will decay when moisture collects on horizontal surfaces, in joints and under wood resting on metal or concrete supports. Termites are also a factor in outdoor structures built near to or in contact with the ground. In marine and other outdoor construction Wolmanized lumber lasts many years longer than ordinary lumber even where the lumber is alternately wet and dry. It is widely used in:



- DOCKS
- PIERS
- SUNNING BENCHES
- STADIUMS
- PLATFORMS
- TRESTLES
- BOARDWALKS
- RAILROAD CARS

Wolmanized lumber is clean; odorless; paintable.

4 PUBLIC WORKS

Rot-producing fungi (and termites) become a danger when the moisture content of lumber exceeds 20%. Immersed support members in reservoirs and water tanks are usually too wet for surface decay, but at some point inside the lumber the moisture gradient may reach the optimum for fungus growth. Deep pressure treatment with Wolman salts prevents this internal deterioration thus prolonging lumber life. Specify Wolmanized lumber for:



- ROOF PLANKS
- BAFFLES
- PARTITIONS
- YOKES
- WALK PLANKS
- COLUMNS
- TANK STOCK
- PIPE STAVES

Wolmanized lumber lasts years longer than untreated lumber.

5 FARM & RANCH

Humid air in barns, greenhouses and laying houses causes dampness at the ridge and sill lines and thereby sets up ideal conditions for termite attack and wood rot. Condensation in milking houses and cold storage areas creates dampness that contributes to the growth of decay fungi; and farm and ranch structures built near or in contact with the ground are exposed to termite destruction. Specify Wolmanized lumber for the following uses:



- BARNS
- GREENHOUSES
- FEED TROUGHS
- STOCK SHELTERS
- POULTRY HOUSES
- SILOS
- POSTS & RAILS
- WAGON BODIES

Wolmanized lumber is non-corrosive and easily worked.

6 RESIDENTIAL

Rot and termites attack houses in and below the first sub-floor where the lumber is most likely to be subject to moisture or condensation. Termites may gain entry through the sub-structure even when it is not directly in contact with the ground. The life of untreated wood is short under these conditions. Wolmanized lumber, used throughout the sub-structure, will resist the generation of decay fungi in the wood fibers and effectively block termite attack.



- MUD SILLS
- FOUNDATION POSTS
- JOISTS
- SUB-FLOORING
- PORCHES • STAIRS
- SLEEPERS
- FRAMES
- HEADERS

Wolmanized lumber costs less in the long run.

how to specify
WOLMANIZED LUMBER

1. Lumber specified to be Wolmanized treated lumber shall be impregnated in a closed cylinder by vacuum-pressure process in accordance with the specifications for treatment of Koppers Company, Inc., with Wolman wood preservative (Tanalith)*.

2. Wolmanized treated lumber to be used in contact with the ground shall be kiln-dried, or air seasoned for a period of not less than 30 days, after treatment.

3. Wolmanized treated lumber which is to be painted or varnished shall be kiln-dried or air seasoned to a moisture content of less than 20 per cent before painting.

4. Each piece of Wolmanized treated lumber shall bear a brand denoting conformance to the standards of Koppers Company, Inc.

* *Note:* Unless otherwise specified, the amount of chemical recommended for normal exposure (0.35 lb. per cubic foot of wood) will be injected. For severe exposure, or ground contact, specify 0.50 lb.; for extremely severe exposure, specify 0.70 lb.

ON-THE-JOB REQUIREMENTS

pre-framing...

Where heavy timber is to be pressure-treated, pre-framing before treatment insures thorough protection at all joints and bolt-holes.

plastering, terrazzo...

When Wolmanized lumber is used as studs, nailers, furring strips, or terrazzo grounds, or other members in contact with plaster or terrazzo, the edges of the wood touching the plaster or terrazzo should be sealed with aluminum paint or similar sealer, to insure against possible staining of the surface.

painting...

Wolmanized lumber which is to be painted should be dried to 15-19 per cent moisture content. The surface should be dusted if excess preservative dust is present. Knots and pitch streaks should be sealed. Wolmanized lumber should be primed with a coat of aluminum paint before water-borne paints (calcimine, resin-vehicle, etc.) are applied.

subflooring...

Where shrinkage in place is a serious fault, as in the case of matched flooring or sub-flooring, the treated lumber should be air-seasoned or kiln-dried to 15-19 per cent moisture content before installation.

where to get
WOLMANIZED LUMBER

Distribution of Wolmanized lumber is national. More than 40 strategically located plants treat lumber with "Wolman" salts and make the end product—Wolmanized lumber—available through lumber manufacturers, wholesalers, and dealers.

"Wolman" and "Wolmanized" are registered Trade Marks and are owned exclusively by Koppers Company, Inc.

LICENSEE TREATERS

- ATLANTIC GULF & PACIFIC COMPANY
  Manila, P.I.
- AUGUSTA WOOD PRESERVING COMPANY
  Augusta, Georgia
- BRICE WOOD PRESERVING COMPANY
  Archer, Florida
- CAPE FEAR WOOD PRESERVING COMPANY
  Fayetteville, North Carolina
- COLUMBIA WOOD PRESERVING COMPANY
  Columbia, South Carolina
- COX WOOD PRESERVING COMPANY
  Orangeburg, South Carolina
- CROSS, AUSTIN LUMBER TREATING CORPORATION
  Brooklyn, New York
- DANTZLER LUMBER & EXPORT COMPANY
  Jacksonville & Pompano Beach, Florida
- DARBY WOOD PRESERVING COMPANY
  Statesboro, Georgia
- DURABLE WOOD PRESERVING COMPANY
  Charlotte, North Carolina
- FOLLEY WOOD PRESERVING COMPANY
  Sumter, South Carolina
- FULLER LUMBER COMPANY
  Lewisville, Arkansas
- GREENVILLE WOOD PRESERVING COMPANY
  Greenville, South Carolina
- HONOLULU WOOD TREATING COMPANY, LTD.
  Honolulu, T. H.
- IMPREGNADORES DE MADERA
  Gualan, Guatemala
- INTERNATIONAL PAPER COMPANY
  Long-Bell Division, Longview, Washington
- JOSLYN MFG. & SUPPLY COMPANY
  Chicago, Illinois
- KELLOG TRANSFER, INC.
  Kellog, Idaho
- MIAMI WOOD TREATING COMPANY
  Coral Gables, Florida
- T. R. MILLER MILL COMPANY
  Brewton, Alabama
- OLIN MATHIESON CHEMICAL CORPORATION
  Frost Forest Products Division, Shreveport, La.
- ROBBINS MANUFACTURING COMPANY
  Tampa & Orlando, Florida
- SHERWOOD TREATING COMPANY
  Winston-Salem, North Carolina
- SMITH-EVANS LUMBER COMPANY
  Rome, Georgia
- G. M. STEWART LUMBER COMPANY
  Minneapolis, Minnesota
- STRUCTURAL WOODS PRESERVING COMPANY
  Greensboro, North Carolina
- TIMBER PRESERVERS, LTD.
  New Westminster, B.C., Canada
- TOLLESON LUMBER COMPANY
  Perry, Georgia
- URANIA LUMBER COMPANY, LTD.
  Urania, Louisiana
- WALKER-WILLIAMS LUMBER COMPANY
  Hatchechubbee, Alabama
- WEST COAST WOOD PRESERVING COMPANY
  Seattle, Washington
- WEST ELIZABETH LUMBER COMPANY
  West Elizabeth, Pennsylvania
- WOOD PRESERVATION, LTD.
  Kingston, Jamaica, B. W. I.
- WOOD PRESERVERS, INC.
  Warsaw, Virginia
- WOOD PRESERVING CORPORATION OF BALTIMORE
  Baltimore, Maryland
- WOOD TREATING INDUSTRIES, INC.
  Hato Rey, Puerto Rico

KOPPERS PLANTS

- ADELAIDE, PA.
- BALTIMORE, MD.
- CARBONDALE, ILL.
- CHARLESTON, S. C.
- CROSSETT, ARK.
- EVERETT, WASH.
- FLORENCE, S. C.
- FORDYCE, ARK.
- GAINESVILLE, FLA.
- HOUSTON, TEXAS
- MONTGOMERY, ALA.
- NASHUA, N. H.
- ORRVILLE, OHIO
- PORT NEWARK, N. J.
- WAUNA, OREGON
- WILMINGTON, CALIF.

KOPPERS

WOLMAN PRESERVATIVE DEPT.

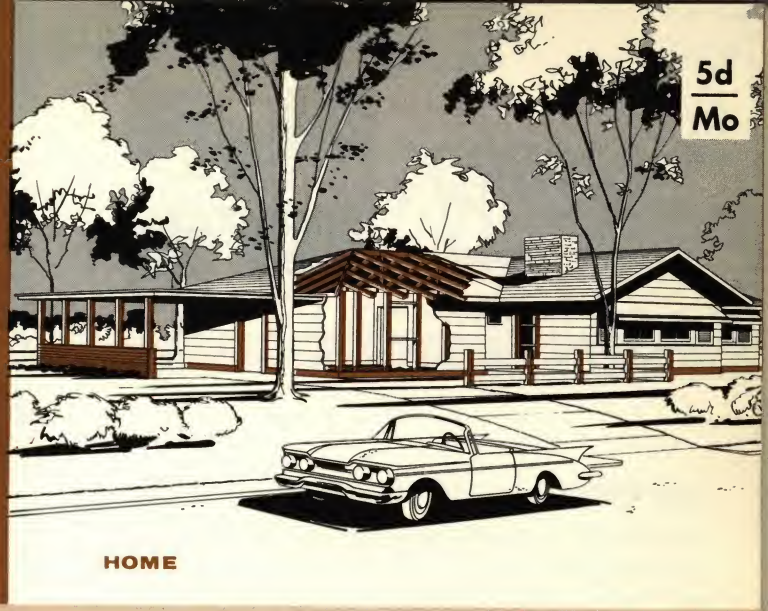
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FARM



HOME

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Monsanto®

PENTA

(PENTACHLOROPHENOL, TECHNICAL)

WOOD PRESERVATIVE

for maximum protection against

DECAY, TERMITES AND WOOD DESTROYING INSECTS

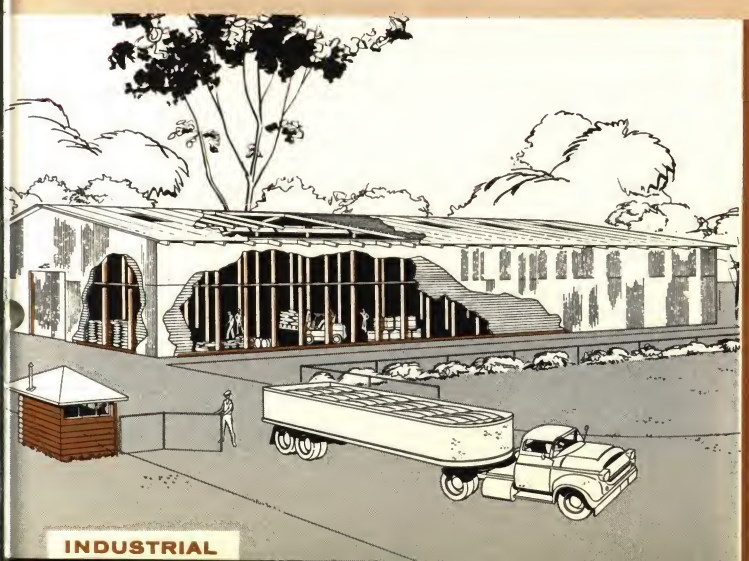
In home or industrial construction, in public buildings—*anywhere* where long service life of wood is desired, Penta gives the required protection against rot and insect attack.

Penta treated wood, when properly processed, is clean, dry and easy to handle. Rain or ground water will not wash Penta from the wood.

As Penta is a chemical compound—not a mixture or by-product—it can be depended upon for absolute uniformity.

The cost of Penta treatment is a very small percentage of the total construction cost. The following pages give more detailed attention to specific features of Penta and Penta treatment.

MONSANTO CHEMICAL COMPANY
Organic Chemicals Division, St. Louis, Missouri



INDUSTRIAL



INLAND WATERWAYS

specify Monsanto

PENTA

(PENTACHLOROPHENOL)

What PENTA is

Penta is an outstanding wood preservative. It is a dry, grayish brown, flaky chemical compound, which is dissolved in oil and applied to wood as a solution. Penta is a chemical with a fixed identity and therefore does not vary in effectiveness.

Methods for Applying PENTA Solutions to Lumber

Pressure treatment offers the most effective protection, because Penta is deposited *uniformly* throughout the wood. Pressure treatment is a commercial process used by wood treating companies and large lumber suppliers. Properly formulated and applied, Penta treatments do not cause wood to swell, shrink, or warp.

Wood may also be protected against decay organisms and termites by spray, brush or immersion treating methods. The effectiveness of such methods hinges on time and frequency of application factors and the species of wood involved.

How Long PENTA Protection Lasts

Penta cannot be washed out by rain or ground water. Actual service records, under severe outdoor exposure to decay and termites, show Penta pressure-treated forest products have already outlived untreated material by more than five times.

Cost of PENTA Treatment

Cost of pressure treatment with Penta is no more than treatment with other comparable recognized wood preservatives. Quantity, grade, species of wood, and moisture content must be considered. Treating plants will be happy to give accurate free estimates for specific jobs. Vulnerable wood materials used in home construction can be treated for 1% to 3% of the total construction cost.

How PENTA Solutions Preserve Wood

Penta is highly toxic to all forms of wood destroying fungi and insects. Wood properly treated with Penta will resist these destroyers. In the pressure treating process, the Penta-in-oil solution is forced uniformly into the wood structure and deep into the actual wood cells. After treatment, the petroleum carrier evaporates, leaving the Penta crystals behind, deposited securely in the cells. These crystals will protect the wood for years against attack by rot or insects.

Where to Buy PENTA Pressure-Treated Lumber

It can be bought through any large lumber dealer or direct from more than 90 treating plants throughout the country. For the name of the treating plant nearest you, see page 4.

advantages

Dimensional Stability

Penta pressure-treatment helps provide dimensional stability to wood in both lumberyard stocks and actual service. In addition to offering maximum cleanliness both in appearance and handling, water-repellent Penta treatment prevents dimensional distortion. Because Penta is oil-borne, this resistance to swelling, shrinking and warping is gained without having to re-wet and re-dry wood that already has been air- or kiln-dried.

Lasting Protection

Because Penta is insoluble in water, neither humidity nor precipitation can cause the preservative to leach out. In addition, once the oils have volatilized from the wood, Penta crystals cannot bleed out, regardless of temperature. Penta treatment means *long* service life and substantial savings in building maintenance.

Ease of Handling

Penta pressure-treated wood is relatively clean, easy to handle, and nonirritating. Suppliers and construction crews who have handled treated wood indicate that Penta-treated wood offers superior materials handling advantages. Water-repellent Penta treatment will not cause lumber to harden or become brittle. There is no impairment to the wood surface that might affect workability.

Meets Specifications

Penta treatment may be specified to meet Federal Specification TT-W-571 and 572; AWPA Specification P8 & P9; Specifications of the Nat'l. Woodwork Mfgrs. Assoc., and others.

application data

Types of Wood

Although there is some variation in the natural resistance of different species of wood to decay and insect attack, most of the commercially produced wood contains sufficient sapwood to be vulnerable to attack. Second growth wood of any species may be subject to deterioration. It is no longer safe to assume natural resistance for any wood. When in doubt, Penta treatment will insure extended service life.

When to Treat Wood

The most practical and economical time to treat wood is prior to construction. This time is appropriate because the wood can be pressure treated, which means more effective protection—longer service life for the wood. For best results, ordinary building lumber should be air-dried or kiln-dried before treatment. Lumber and timbers should be adequately conditioned after treatment to avoid adverse effects from excessive oil retentions. The treating plant operator can advise you on this.

Color and Finish of Wood

The final color of Penta treated wood is governed by the solvent. Darker oil carriers means darker wood color. Your specification of the solvent should depend entirely on the end use of the wood to be treated.

Woods given a water-repellent treatment retain their

WOOD PRESERVATIVE

MONSANTO
PENTA
wood preservative

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Mo

natural color without impairment of surface cleanliness or workability.

Versatility in Application

From rafters to guard rails, from millwork to mine timbers, from under-roof applications to those fully exposed to weather variances, Penta-treated wood offers you an unparalleled degree of versatility as a building material.

specifications

Here is the basic information you need to write a specification for Penta pressure treatment. You can adapt the following example to suit your particular job:

Scope:

Any wood product can be treated with a Penta preservative solution to extend its service life if it will be exposed to decay or insect attack. Since the amount or retention of preservative in the wood, the type of solution used and the condition of the wood after treatment are the three most essential points, the specifying agency should see that these three points are covered.

Retention:

Reference to the adjoining chart will help the specifying agency select the amount of Penta desired for each item treated. The minimum retention shall be 0.3 lb. of Penta per cubic foot of wood or 6 lbs. of a 5% Penta solution. More severe use conditions would dictate heavier retentions.

Solution Type:

Petroleum carriers for Penta vary in viscosity, color and other characteristics. Usually where paintability is not a requirement or where the slower volatilizing oils in the wood would not be detrimental, AWPA P9 or other oil carriers are acceptable. Where these oils might interfere with the end use because of staining or adverse effects upon paint, a water repellent Penta solution should be specified.

Treatment:

Treatment shall be by a standard pressure process and shall conform to the Standards set in Federal Specification TT-W-571 or suitable AWPA specifications. The processing details should be left to the descretion of the treating plant, but the specifying agency should stipulate the end use requirements for the treated wood so that the wood can be processed accordingly.

Certification:

Treating company shall furnish a notarized certificate that all pertinent details of the specification have been met.

WE'LL SEND YOU A COPY of up-to-date "Service Information on PENTAchlorophenol Treated Wood" if you'll simply send in your request on your letterhead. Write:

MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, Box 478, Dept. SC, St. Louis, Mo.

WHERE AND HOW MUCH PENTA TO SPECIFY

The following chart can be used as a guide for specifying the proper amount of Penta retention. Since the AWPA Manual of Recommended Practice designates retention in terms of Penta rather than in terms of 5% solution, the retentions are expressed that way in the chart and represent minimum retentions.

If it is desired to specify retentions in pounds of 5% Penta solution per cubic foot, multiply the decimal given for Penta in the chart by 20, and the whole number will be the quantity of solution per cubic foot.

where to use penta

	Petroleum Distillate Carrier (AWPA P9 Spec.)	Paintable Type Carrier (Plus Water Repellents)
HOME CONSTRUCTION		
Sills and Plates	No	0.3
Joists and Girders	No	0.3
Subflooring and Screeds	No	0.3
Studding and Rafters	No	0.3
Millwork*	No	0.3
Porch Steps and Flooring	No	0.3
Fencing	0.3	0.3
INDUSTRIAL CONSTRUCTION		
Foundation Piling	0.6	No
Poles	0.4	No
Sills and Plates	0.4	0.4
Joists and Girders	0.4	0.4
Subflooring and Screeds	No	0.3
Factory Flooring	0.3	0.3
Roof Plank	No	0.3
Platforms and Decking	0.3	0.3
Posts and Fencing	0.3	0.3
INSTITUTIONAL CONSTRUCTION		
Foundation Piling	0.6	No
Poles	0.4	No
Sills and Plates	0.4	0.4
Joists and Girders	No	0.4
Subflooring and Screeds	No	0.3
Flooring	No	0.3
Studding and Rafters	No	0.3
Millwork*	No	0.3
Stadiums and Grandstands	No	0.3
Posts and Fencing	0.3	0.3
MISCELLANEOUS CONSTRUCTION		
Bridge and Dock Piling**	0.6	No
Bridge and Dock Timbers	0.6	No
Bridge and Dock Decking	0.4	No
Cooling Towers	0.6	No
Cross Arms	0.3	No
Cross Ties	0.4	No
Foundation Piling	0.6	No
Mine Props and Timbers	0.4	No
Poles	0.4	No
Posts	0.3	0.3

*Or treated in accordance with NWMA Standards.
**For land or fresh water use.

MONSANTO
PENTA
wood preservative

The following pressure treating plants will be happy to answer any questions you may have about Penta treatment, specifications, solvents:

treating plants

ALABAMA
GULFPORT CREOSOTING COMPANY
P. O. Box 449
Mobile, Alabama

T. R. MILLER MILL COMPANY
Brewton, Alabama

WALKER WILLIAMS LUMBER COMPANY
Hatchechubbee, Alabama

WELLS TAYLOR WOOD PRESERVING CO.
4941 Court R—Central Park
Birmingham, Alabama

ARKANSAS
DIERKS FORESTS, INC.
P. O. Box 387
De Queen, Arkansas

KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 231
North Little Rock, Arkansas

CALIFORNIA
KOPPERS COMPANY, INC.
Wood Preserving Division
Oroville, California

KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 351
Wilmington, California

McCORMICK & BAXTER CREOSOTING CO.
P. O. Box 1728
Stockton, California

WARREN SOUTHWEST, INC.
300 Maple Street
Torrance, California

COLORADO
BRODERICK WOOD PRODUCTS CO.
5230 Washington Street
Denver 16, Colorado

KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 6628
Denver 16, Colorado

FLORIDA
M. J. CARR CREOSOTING CO.
P. O. Box 755
North Miami, Florida

COLEMAN EVANS WOOD PRESERVING CO.
1074 East 8th Street
Jacksonville, Florida

GENERAL CABLE & CROSSARM CORPORATION
Palatka, Florida

OWSLEY LUMBER COMPANY
P. O. Box 1249
Pensacola, Florida

PERRY LUMBER CO.
Perry, Florida

POST & LUMBER PRESERVING CO.
P. O. Box 542
Quincy, Florida

GEORGIA
ATLANTIC CREOSOTING CO., INC.
P. O. Box 177
Savannah, Georgia

COASTAL PLAINS TREATING CO.
P. O. Box 209
Tifton, Georgia

ESCAMBIA TREATING COMPANY
Lewis Wood Preserving Division
P. O. Box 206
Camilla, Georgia

WILLIAM C. MEREDITH COMPANY
P. O. Box 456
East Point, Georgia

UNION LUMBER COMPANY, INC.
960 Lawrence Avenue
East Point, Georgia

ILLINOIS
AMERICAN CREOSOTING CORPORATION
Kettle River Company
1205 Madison
Madison, Illinois

CASSWOOD INDUSTRIES, INC.
P. O. Box 37
Beardstown, Illinois

JENNISON WRIGHT CORPORATION
22nd at Alton & Eastern Tracks
Granite City, Illinois

JOSLYN MFG. & SUPPLY COMPANY
9351 West Grand
Franklin Park, Illinois

KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 270
Carbondale, Illinois

T. J. MOSS TIE COMPANY
Valley Junction
East St. Louis, Illinois

INDIANA
COLUMBUS WOOD PRESERVING CO.
First & Lafayette Streets
Columbus, Indiana

INDIANA WOOD PRESERVING COMPANY
Terre Haute, Indiana

IOWA
JOSLYN MFG. & SUPPLY COMPANY
P. O. Box 298
Tama, Iowa

KENTUCKY
BROWN WOOD PRESERVING COMPANY, INC.
Martin-Brown Building
Louisville, Kentucky

KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 277
Russell, Kentucky

LOUISIANA
AMERICAN CREOSOTE WORKS, INC.
P. O. Box 110
Winnfield, Louisiana

EVR-WOOD TREATING COMPANY
P. O. Box 726
Jennings, Louisiana

INTERNATIONAL PAPER COMPANY
Wood Preserving Division
Drawer 231
De Ridder, Louisiana

JOSLYN MFG. & SUPPLY COMPANY
1680 Benton Road
Bossier City, Louisiana

JOSLYN MFG. & SUPPLY COMPANY
Harahan, Louisiana

ROY O. MARTIN LUMBER INDUSTRIES
Colfax Creosoting Company
P. O. Box 231
Pineville, Louisiana

OLIN MATHIESON CHEMICAL CORPORATION
Frost Forest Products Division
P. O. Box 1125
Shreveport, Louisiana

OLIVER TREATED PRODUCTS COMPANY
P. O. Box 671
Hammond, Louisiana

STANDARD WOOD PRESERVERS OF SHREVEPORT, INC.
P. O. Box 6488
Shreveport, Louisiana

THE URANIA LUMBER COMPANY LTD.
Urania, Louisiana

MARYLAND
JOSLYN MFG. & SUPPLY COMPANY
9th & Chesapeake Streets
Baltimore, Maryland

J. I. WELLS CO., INC.
Quantico Road
P. O. Box 312
Salisbury, Maryland

WOOD PRESERVING COMPANY OF BALTIMORE, INC.
4550 East Lombard Street
Baltimore, Maryland

MINNESOTA
MINNESOTA & ONTARIO PAPER CO.
National Pole & Treating Division
Fridley, Minnesota

THE STEWART COMPANY
421 Johnson Street, Northeast
Minneapolis, Minnesota

WHEELER LUMBER BRIDGE & SUPPLY CO.
Cass Lake, Minnesota

MISSISSIPPI
W. G. AVERY BODY COMPANY
3002 North Mill Street
Jackson, Mississippi

CROSBY FOREST PRODUCTS CO.
Picayune, Mississippi

CROSBY LUMBER & MANUFACTURING CO.
Crosby, Mississippi

FERNWOOD INDUSTRIES
Fernwood, Mississippi

GULF STATES CREOSOTING DIVISION AMERICAN CREOSOTING CORPORATION
Meridian, Mississippi

MISSISSIPPI WOOD PRESERVING COMPANY
Brookhaven, Mississippi

T. J. MOSS TIE COMPANY
Columbus, Mississippi

SOUTHERN PINE POST COMPANY
Wiggins, Mississippi

MISSOURI
INTERNATIONAL PAPER COMPANY
Wood Preserving Division
P. O. Box 1030
Joplin, Missouri

KOPPERS COMPANY, INC.
Wood Preserving Division
Box 8057 Leeds Station
Kansas City 3, Missouri

SENTINEL WOOD TREATING COMPANY
Ava, Missouri

MONTANA
MONTANA POLE & TREATING COMPANY
P. O. Box 1056
Butte, Montana

J. NEILS LUMBER COMPANY
Division St. Regis Paper Company
Libby, Montana

NEW HAMPSHIRE
KOPPERS COMPANY, INC.
Wood Preserving Division
Nashua, New Hampshire

NEW ENGLAND POLE & WOOD TREATING CORP.
Merrimac, N. H.

NEW YORK
WOOD PRESERVING COMPANY, INC.
401 North Midler Avenue
Syracuse 6, New York

NEW MEXICO
LeBUS BROTHERS
Eagle Nest, New Mexico

SHOLLENBARGER & CAZZOLA LUMBER CO.
Springer, New Mexico

NORTH CAROLINA
DURABLE WOOD PRESERVING CO.
P. O. Box 9128
Charlotte, North Carolina

OHIO
KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 359
Orrville, Ohio

PERMA-WOOD, INC.
2261 North Buck Street
Cincinnati 14, Ohio

OKLAHOMA
SOUTHWESTERN WOOD PRESERVING CO.
Sallisaw, Oklahoma

TWO RIVERS TREATING COMPANY
Panama, Oklahoma

OREGON
JOSLYN MFG. & SUPPLY CO.
4823 North Lombard
Portland, Oregon

McCORMICK & BAXTER CREOSOTING CO.
P. O. Box 3344
Portland 8, Oregon

POPE & TALBOT, INC.
Wood Preserving Department
P. O. Box 186
St. Helens, Oregon

PENNSYLVANIA
EPPINGER & RUSSELL COMPANY
Street Road & Pennsylvania Railroad
Eddington (Bucks County) Pennsylvania

NATIONAL WOOD PRESERVERS, INC.
Eagle Road & Pennsylvania Railroad
Havertown, Pennsylvania

SOUTH CAROLINA
COLUMBIA WOOD PRESERVING COMPANY
P. O. Box 9424
Columbia, South Carolina

COX WOOD PRESERVING COMPANY
Cannon Bridge Road
P. O. Box 722
Orangeburg, South Carolina

KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 871
Charleston, South Carolina

TAYLOR-COLQUITT COMPANY
P. O. Box 1491
Spartanburg, South Carolina

SOUTH DAKOTA
NORTHWEST WOOD PRESERVING COMPANY
Deadwood, South Dakota

TENNESSEE
AMERICAN CREOSOTE WORKS, INC.
Jackson, Tennessee

TEXAS
ANGELINA COUNTY LUMBER COMPANY
P. O. Box 1020
Lufkin, Texas

CONROE CREOSOTING COMPANY
Conroe, Texas

HATHEWAY PATTERSON CORPORATION
6809 Irvington Boulevard
Houston 22, Texas

INTERNATIONAL CREOSOTING & CONSTRUCTION CO.
P. O. Box 690
Texarkana, Texas

KOPPERS COMPANY, INC.
Wood Preserving Division
1919 Collingsworth
Houston, Texas

KOPPERS COMPANY, INC.
Wood Preserving Division
P. O. Box 20
Texarkana, Texas

MARSHALL WOOD PRESERVING COMPANY
Marshall, Texas

W. J. SMITH WOOD PRESERVING CO., INC.
P. O. Box 703
Denison, Texas

SOUTHERN PINE LUMBER COMPANY
Diboll, Texas

TEXAS CREOSOTING COMPANY
P. O. Box 131
Houston, Texas

VIRGINIA
VIRGINIA WOOD PRESERVING CORPORATION
P. O. Box 9483
Richmond, Virginia

WASHINGTON
A. B. CHANCE COMPANY
Chehalis, Washington

R. G. HALEY INTERNATIONAL CORP., INC.
P. O. Box 1075
Bellingham, Washington

INTERNATIONAL PAPER COMPANY
Wood Preserving Division
Longview, Washington

WEST COAST WOOD PRESERVING CO.
1118 Fourth Avenue
Seattle, Washington

WEST VIRGINIA
KOPPERS COMPANY, INC.
Wood Preserving Division
Green Springs, West Virginia

WISCONSIN
KOPPERS COMPANY, INC.
Wood Preserving Division
Superior, Wisconsin

PENTA WOOD PRODUCTS, INC.
Siren, Wisconsin

WYOMING
FOREST PRODUCTS TREATING CO.
P. O. Box 35
Laramie, Wyoming

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ORGANIC CHEMICALS DIVISION • BOX 478, ST. LOUIS, MISSOURI • TELEPHONE: WYdown 3-1000
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Detroit 2 • Houston 2 • Los Angeles 15 • New York 22 • Pittsburgh • San Francisco 4 • Seattle 4 • Syracuse • Wilmington 99
Montreal, Quebec • Toronto, Ontario • Vancouver, B. C.

INFORMATION BULLETIN

AGRICULTURAL CHEMICALS DIVISION

SHELL CHEMICAL CORPORATION • 460 PARK AVENUE, NEW YORK 22, N.Y.
NEW YORK • ATLANTA • ST. LOUIS • NEW ORLEANS • SAN FRANCISCO

SC:59-10

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ALDRIN or DIELDRIN
FOR PRE-CONSTRUCTION TERMITE CONTROL

LISTED IN THE MINIMUM PROPERTY STANDARDS OF F. H. A.

Soil poisoning before and during construction is becoming more prevalent because of its adaptability to large-scale construction projects, such as public housing, industrial development, and subdivision development. Since several foundations or slabs are poured during the same working day, an experienced operator can easily treat many units under construction with little or no interference with construction personnel.

Pre-construction treatment with *aldrin* or *dieldrin* offers several important advantages:

1. Pre-construction soil poisoning is the only means of assuring a complete chemical barrier below and around the structure.

2. In areas of known termite infestation, aldrin or dieldrin protect the structure *before* the insects gain entry, thus eliminating the necessity of applying this protection later, and making structural alterations.

3. Thorough treatment of foundation trenches is easily accomplished. Crawl spaces and basements are exposed for thorough treatment before the concrete slab or floor is poured.

4. The application of aldrin or dieldrin is more convenient because all areas to be treated are exposed and ventilated. There is no need to dig special trenches.

5. It is often more economical to treat with aldrin or dieldrin than to use other means of termite protection.

Aldrin and dieldrin are suggested for use as soil poisons for termite prevention and control. The United States Forest Service, United States Department of Agriculture, Federal Housing Administration, Corps of Engineers, Department of the Navy, many states and other agencies responsible for building construction and maintenance have recognized aldrin and dieldrin as effective soil poisons.

MIXING DIRECTIONS

To prepare the ready-to-use emulsion, dilute 1 gallon of aldrin concentrate (containing 2 pounds of technical aldrin per gallon) with 48 gallons of water or 1 gallon of aldrin concentrate (containing 4 pounds of technical aldrin per gallon) with 95 gallons of water. Dilute 1 gallon of dieldrin concentrate (containing 1½ lbs. technical dieldrin per gal.) with 60 gals. water. Dieldrin concentrate may also be diluted with No. 2 fuel oil. Apply according to the following directions.

A. NEW CONSTRUCTION — SLAB-ON-GROUND

1. Prior to pouring slab, apply *2 gallons of aldrin or dieldrin mixture per 5 linear feet* to *critical areas* only, such as along the inside of foundation walls, around sewer pipes, conduits, etc.

2. Apply *1 gallon per 5 linear feet* to the trench around the *outside* perimeter of slab, where trench is no deeper than 15 inches to top of footing. Apply another *1 gallon per 5 linear feet* as soil is being replaced in trench after slab is poured.

If top of footing is deeper than 15 inches to grade level due to slope of land, *double* the dosage applied to the trench and backfill.

3. Apply *1 gallon per 10 square feet* to the soil surface as an overall treatment prior to pouring slab. Apply to any area which may serve as a floor, attached porch, entrance platform, utility entrance, carport and similar situations where slab or fill is at grade level. In case of porous or absorbent fill, increase dosage to *1 gallon per 7 square feet.*

Note: Be sure grade stakes are removed before concrete sets.

B. NEW CONSTRUCTION—CRAWL-SPACE

1. After foundation is poured, but prior to replacement of outside foundation fill, apply *2 gallons of mixture per 5 linear feet* to *critical areas* only, such as along *inside* of foundation walls, around piers and utility entrances or holes left for insertion of pipes, conduits, etc.

2. Apply *1 gallon per 5 linear feet* to *outside* foundation trench, where trench is no deeper than 15 inches to top of footing. Apply *1 gallon per linear foot* to the backfill as this is being replaced.

If top of footing is more than 15 inches to grade level due to slope of the land, *double* the dosage applied to the trench and backfill.

3. Apply *1 gallon per 10 square feet* overall to soil surfaces in areas to be covered with slab or dirt and gravel fill, such as attached porches, entrance platforms, utility entrances, carports and similar situations where the slab or fill is to be at grade level. In case of porous or absorbent fill, increase dosage to *1 gallon per 7 square feet.*

C. NEW CONSTRUCTION—BASEMENT

1. Treat the same as outlined in "Crawl-Space Construction", except that because

footings are deeper, apply *2 gallons of mixture per 5 linear feet* around foundation and another *2 gallons per 5 linear feet* to the backfill.

2. The areas under and around window wells require treatment with about *2 gallons per 5 linear feet.*

D. VOIDS OF UNIT MASONRY WALLS AND PIERS

Treat all voids such as concrete block, brick veneer extending to footings, and block piers, with *1 gallon of mixture per 5 linear feet.*

★ ★ ★ ★ ★

As with other methods of termite protection, all stumps, roots, fallen timber and other wood or wood products should be removed from foundation area before treatment. Expansion joints, joints around anchors, utility entrances, and other penetrations of concrete slabs should be sealed with coal tar pitch or other acceptable resilient, non-cellulose material.

SOME SUGGESTIONS

1. Use high *volume* equipment. A 1½ inch hose and a 20 gallon per minute centrifugal pump will hasten the application of the treatment. High *pressure* equipment is not generally desirable or practical for pre-construction treatment.

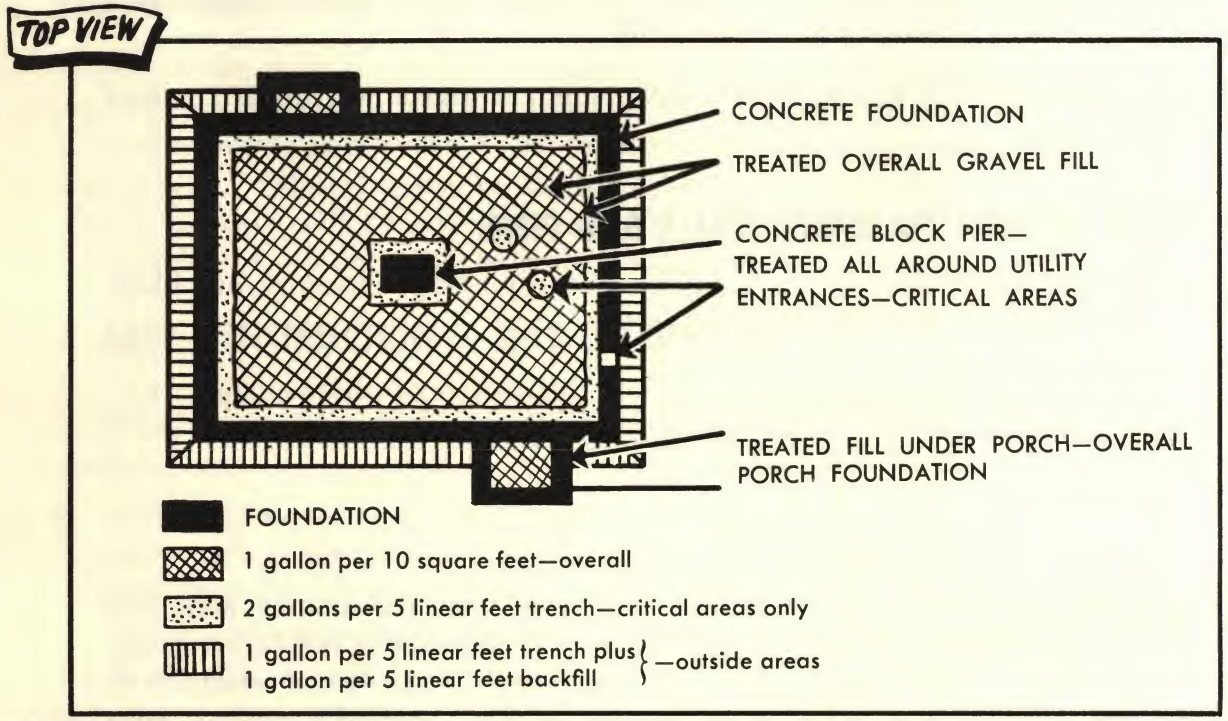
2. Water soluble colors may be added to the emulsion as a visual aid to insure thoroughness of treatment.

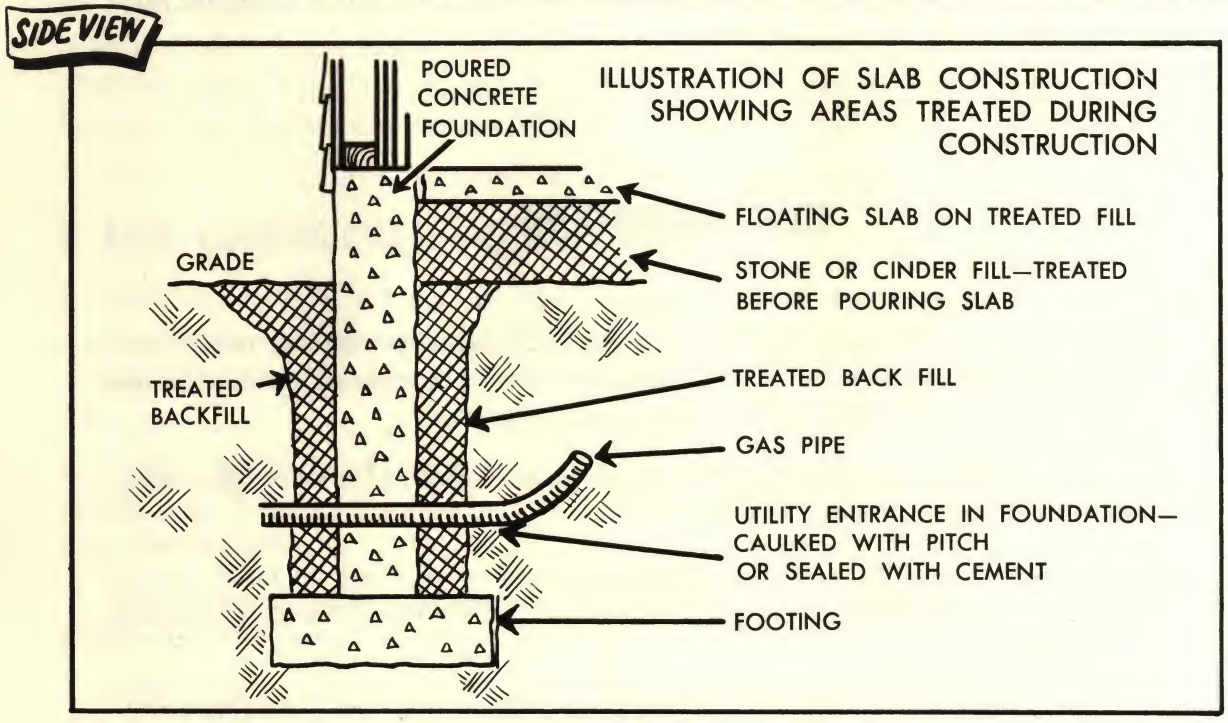
3. When treating monolithic slab construction extreme care must be taken not to disturb perimeter excavations. Cut down the pressure and volume delivery so soil will not wash into trenches.

4. Remember to treat under attached carport areas. These areas are sometimes converted to living areas and should be protected against future infestations.

5. To avoid surface flow of the chemical from the treated area, treatments should not be made when the soil or fill is excessively wet or immediately after heavy rains.

TYPICAL APPLICATION OF CHEMICAL TERMITE BARRIERS FOR NEW CONSTRUCTION—SLAB-ON-GROUND TYPE





Aldrin and dieldrin are readily available. Ten years of experience have shown them to be powerful, alkali-stable termite poisons. Be sure of long-lasting control when you do a job with aldrin or dieldrin.

The information in this bulletin is based on data available to us and is believed to be correct. However, no warranty is expressed or implied regarding the accuracy of these data, the results to be obtained from the use thereof, or that any such use will not infringe any patent.

section

6

metals

subsections

aluminum a

bronze, brass, copper, nickel silver b

steel, iron c

porcelain enamel d

ornamental metal work e

tablets, letters f

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fire escapes, stairs, railings h

other metal work i

firms

this index covers only firms in this section

section number	**6a**
first letters of firm name	**Ab**

ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Acme Flagpole Div., John E., Lingo & Son, Inc. 6g/Ac
Allegheny Ludlum Steel Corp. 6c/AL
AllianceWall Div., AllianceWall, Inc. .. 6d/AL
Aluminum Co. of America 6a/ALu
American Brass Co. 6b/Am
Andco Industries Corp. 6f/An
Armco Steel Corp. 6c/Ar
Armento Metal Arts Co. 6f/Ar
Art In Bronze Co., Inc. 6f/Art
Baartol Co., Inc. 6g/Ba
Babcock-Davis Associates, Inc. 6g/Bab
Blum, Julius, & Co., Inc. 6e/BL
Blumcraft of Pittsburgh
• *ornamental metalwork* 6e/BLu
• *railings* 6e/BLy
Braun, J. G., Co.
• *aluminum shapes* 6a/Br
• *ornamental metal* 6e/Bra
Campbell Foundry Co. 6i/Ca
Central Wire & Iron Works, Inc. 6h/Ce
Colonial-Hites Co. 6f/Co
Duvinage Corp. 6h/Duv
Fiske, J. W., Architectural Metals, Inc. . 6e/Fi
Flockhart Foundry Co. 6i/FL
Grossman Steel Stair Corp. 6h/Gr
Hankins & Johann, Inc. 6e/Ha
Hydrometals, Inc. 6b/Hy
International Bronze Tablet Co., Inc. ... 6f/In
Kaiser Aluminum & Chemical Sales, Inc.
• *aluminum products* 6a/Ka
• *ornamental extrusions* 6a/Kai
Kawneer Co. 6d/Ka
Klemp International 6e/KL
Knight, H. W., & Son, Inc. 6f/Kn
Knight Mfg. Co. 6f/Kni
Lake Shore Markers Inc. 6f/La
Lawrence Metal Products, Inc. 6e/La
Livers Bronze Co. 6e/Li
Matthews, Jas. H., & Co., Inc. 6f/Ma
McKinley Designs 6e/Mc
McKinley Iron Works 6i/Mc
Michel & Pfeffer Iron Works, Inc. 6e/Mi
Mirawal Div., Birdsboro Steel Foundry & Machine Co. 6d/Mi
Neenah Foundry Co. 6i/Ne
Nelco Metalcraft, Inc. 6f/Ne
Newman Brothers, Inc.
• *aluminum railings* 6e/New
• *tablets and letters* 6f/New
North American Iron & Steel Co., Inc. 6g/No
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Oregon Brass Works 6f/Or
Potter Fire Escape Co. 6h/Po
Republic Steel Corp. 6c/Re
Revere Copper & Brass Inc. 6a/Ra
Reynolds Metals Co. 6a/Re
Rigidized Metals Corp. 6c/Ri
Southwell Co. 6f/So
Spanjer Bros., Inc. 6f/Sp
Spencer Industries, Inc. 6f/Spe
Supersine Co. 6f/Su
United States Bronze Sign Co., Inc. ... 6f/Un
United States Flagpole & Equipment Co., Inc. 6g/Un
United States Gypsum Co. 6e/Un
Washington Steel Corp. 6c/Wa
Wellman Products Co. 6f/We
Woodbridge Ornamental Iron Co. .. 6h/Woo

firms

this index covers only firms in this section

section number	**6a**
first letters of firm name	**Ab**

ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Acme Flagpole Div., John E., Lingo & Son, Inc. 6g/Ac
Allegheny Ludlum Steel Corp. 6c/AL
AllianceWall Div., AllianceWall, Inc. .. 6d/AL
Aluminum Co. of America 6a/ALu
American Brass Co. 6b/Am
Andco Industries Corp. 6f/An
Armco Steel Corp. 6c/Ar
Armento Metal Arts Co. 6f/Ar
Art In Bronze Co., Inc. 6f/Art
Baartol Co., Inc. 6g/Ba
Babcock-Davis Associates, Inc. 6g/Bab
Blum, Julius, & Co., Inc. 6e/BL
Blumcraft of Pittsburgh
• *ornamental metalwork* 6e/BLu
• *railings* 6e/BLy
Braun, J. G., Co.
• *aluminum shapes* 6a/Br
• *ornamental metal* 6e/Bra
Campbell Foundry Co. 6i/Ca
Central Wire & Iron Works, Inc. 6h/Ce
Colonial-Hites Co. 6f/Co
Duvinage Corp. 6h/Duv
Fiske, J. W., Architectural Metals, Inc. .. 6e/Fi
Flockhart Foundry Co. 6i/FL
Grossman Steel Stair Corp. 6h/Gr
Hankins & Johann, Inc. 6e/Ha
Hydrometals, Inc. 6b/Hy
International Bronze Tablet Co., Inc. ... 6f/In
Kaiser Aluminum & Chemical Sales, Inc.
• *aluminum products* 6a/Ka
• *ornamental extrusions* 6a/Kai
Kawneer Co. 6d/Ka
Klemp International 6e/KL
Knight, H. W., & Son, Inc. 6f/Kn
Knight Mfg. Co. 6f/Kni
Lake Shore Markers Inc. 6f/La
Lawrence Metal Products, Inc. 6e/La
Livers Bronze Co. 6e/Li
Matthews, Jas. H., & Co., Inc. 6f/Ma
McKinley Designs 6e/Mc
McKinley Iron Works 6i/Mc
Michel & Pfeffer Iron Works, Inc. 6e/Mi
Mirawal Div., Birdsboro Steel Foundry & Machine Co. 6d/Mi
Neenah Foundry Co. 6i/Ne
Nelco Metalcraft, Inc. 6f/Ne
Newman Brothers, Inc.
• *aluminum railings* 6e/New
• *tablets and letters* 6f/New
North American Iron & Steel Co., Inc. 6g/No
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Oregon Brass Works 6f/Or
Potter Fire Escape Co. 6h/Po
Republic Steel Corp. 6c/Re
Revere Copper & Brass Inc. 6a/Ra
Reynolds Metals Co. 6a/Re
Rigidized Metals Corp. 6c/Ri
Southwell Co. 6f/So
Spanjer Bros., Inc. 6f/Sp
Spencer Industries, Inc. 6f/Spe
Supersine Co. 6f/Su
United States Bronze Sign Co., Inc. ... 6f/Un
United States Flagpole & Equipment Co., Inc. 6g/Un
United States Gypsum Co. 6e/Un
Washington Steel Corp. 6c/Wa
Wellman Products Co. 6f/We
Woodbridge Ornamental Iron Co. .. 6h/Woo

products

catalogs are indexed by section and alphabetic sequence

section number	**6a**
first letters of firm name	**Ab**

area walls

Cleveland Steel Specialty Co., Inc. 2i/CL
Donley Brothers Co. 31L/Do

armored concrete

Flockhart Foundry Co. 6i/FL

balconies

see ornamental metal work 6

balustrades

see ornamental metalwork; railings 6

bench legs

Standard Pressed Steel Co. 23i/St

boxes—gutter, meter or valve

Flockhart Foundry Co. 6i/FL
McKinley Iron Works 6i/Mc; 13b/Mc
Neenah Foundry Co. 6i/Ne

caps and bases—column or post

see wood frame construction accessories: —caps and bases—column or post 2
columns — ornamental metal:—caps and bases for 6

castings

aluminum

ABC Bulletin and Directory Co., Assoc.
Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Aluminum Co. of America 6a/ALu
American Abrasive Metals Co. 13b/Am
Blum, Julius, & Co., Inc. 6e/BL
Blumcraft of Pittsburgh 6e/BLu
Braun, J. G., Co. 6e/Bra
Colonial-Hites Co. 6f/Co
Construction Specialties Inc. 19e/Con; 20d/Co; 20d/Con
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka
Knight, H. W., & Son, Inc. 6f/Kn
Lake Shore Markers Inc. 6f/La
Livers Bronze Co. 6e/Li
McKinley Designs 6e/Mc
McKinley Iron Works 13b/Mc
Michaels Art Bronze Co. 3a/Mic
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Oregon Brass Works 6f/Or
Revere Copper & Brass Inc. 6a/Ra
Wellman Products Co. 6f/We

castings *cont.*

brass or bronze

ABC Bulletin and Directory Co., Assoc.
Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
American Abrasive Metals Co. 13b/Am
American Brass Co. 6f/Am
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra
Colonial-Hites Co. 6f/Co
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Knight, H. W., & Son, Inc. 6f/Kn
Livers Bronze Co. 6e/Li
McKinley Designs 6e/Mc
McKinley Iron Works 13b/Mc
Oregon Brass Works 6f/Or
Wellman Products Co. 6f/We

iron

American Abrasive Metals Co. 13b/Am
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra
Campbell Foundry Co. 6i/Ca
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Flockhart Foundry Co. 6i/FL
McKinley Designs 6e/Mc
McKinley Iron Works 6i/Mc; 13b/Mc
Neenah Foundry Co. 6i/Ne

ornamental

see ornamental metalwork 6

steel or stainless steel

Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
McKinley Designs 6e/Mc
Michaels Art Bronze Co. 3a/Mic

ceilings

metal—suspended

Accesso Ceiling Products, Inc. 11b/Ac
Airson Co., Inc. 31h/Ak
Armstrong Cork Co. 11a/Ar
Eastern Products Corp., Acoustical Div. 11a/Ea
Forty-Eight Insulation, Inc. 11a/Fo
Guth, Edwin F., Co. 33a/Gu
National Gypsum Co. 11a/Na
Republic Steel Corp. 6c/Re
Reynolds Metals Co. 11a/Re
Simplex Ceiling Corp. 11a/Si; 31b/Si
Smithcraft Lighting 33a/Sm

columns—ornamental metal

(see also ornamental metalwork ....6)
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
McKinley Designs 6e/Mc

columns—ornamental metal *cont.*

caps and bases for

Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6a/Br
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Limbach Co., Curtain Wall Dept. 3a/Li
Ryerson, Jos. T., & Son, Inc. 2d/Ry

covers, frames, gratings or traps—catch basin, trench, etc.

American Abrasive Metals Co. 13b/Am
Babcock-Davis Associates Inc. 16J/Ba
Bilco Co. 16J/Bi
Bustin Steel Products Inc. 13a/Bu
Campbell Foundry Co. 6i/Ca
Donley Brothers Co. 31L/Do
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Flockhart Foundry Co. 6i/FL
Irving Subway Grating Co., Inc. 13a/Ir
Josam Mfg. Co. 30g/Jo
McKinley Iron Works 6i/Mc; 13b/Mc
Neenah Foundry Co. 6i/Ne

curbs

armored concrete

Flockhart Foundry Co. 6i/FL

inlets for

Campbell Foundry Co. 6i/Ca
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Flockhart Foundry Co. 6i/FL
McKinley Iron Works 6i/Mc
Neenah Foundry Co. 6i/Ne

metal

Blum, Julius, & Co., Inc. 6e/BL
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Wooster Products Inc. 13b/Wo

stone

see specific type of stone 4

doors

ash pit, clean-out, coal chute or trap

(see also fireplaces:—ash and cleanout dumps for ....31)
Cleveland Steel Specialty Co., Inc. 2i/CL
Donley Brothers Co. 28a/Do; 31L/Do
Flockhart Foundry Co. 6i/FL
Majestic Co., Inc. 31L/Ma
Superior Fireplace Co. 31L/Su

coal

see doors:—ash pit, cleanout, coal chute or trap 6

products

extrusions

Acme Metal Molding Co. 21/Ac
Aluminum Co. of America 3a/ALu; 6a/ALu; 8b/ALu
American Art Metals Co. ..16a/Am; 21a/Am
American Brass Co. 6b/Am
Blum, Julius, & Co., Inc. 6e/BL
Blumcraft of Pittsburgh 6e/BLu
Braun, J. G., Co. 6e/Bra
Construction Specialties, Inc. 19e/Con; 20d/Con
Extruded Louver Corp. 20d/Ex
Hankins & Johann, Inc. 16a/Ha
Himmel Brothers Co. 21/Hi
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka; 6a/Kai
Kawneer Co. 21/Kaw
Lawrence Metal Products, Inc. 6e/La
Limbach Co. 8b/Li
Limbach Co., Curtain Wall Dept.....3a/Li
McKinley Designs 6e/Mc
McKinley, O. O., Co., Inc. 19e/Mc
Mirawal Div., Birdsboro Steel Foundry & Machine Co. 6d/Mi
National Store Fronts Co. Inc. 16a/Nat
Newman Brothers, Inc. 6e/New
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Pittsburgh Plate Glass Co. 3e/Pit; 21/Pi
Reynolds Metals Co. 6a/Re
Rigid Metal Products Inc. 21/Ri
Valley Metal Products Co., Sub. Mueller Brass Co. 17a/Va
Winco Ventilator Co., Inc.....17a/Wic

facings

see specific material or use as:
panels—building 3
limestone:—facings and veneers; marble:—facings and veneers 4
metal; porcelain enamel:—facings and veneers 6
siding 8
surfacing and paneling 14
wall facings or linings—interchangeable 22

fire escapes

Central Wire & Iron Works, Inc. 6h/Ce
Potter Fire Escape Co. 6h/Po

flagpoles—metal and wood

ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Acme Flagpole Div., John E. Lingo & Son, Inc. 6g/Ac
Baartol Co., Inc. 6g/Ba
Babcock-Davis Associates, Inc. 6g/Bab
United States Flagpole & Equipment Co., Inc. 6g/Un

accessories for—trucks, fixtures, etc.
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab

flag poles—metal and wood *cont.*

accessories for—trucks, fixtures, etc. *cont.*
Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Acme Flagpole Div., John E. Lingo & Son, Inc. 6g/Ac
Baartol Co., Inc. 6g/Ba
Babcock-Davis Associates, Inc. 6g/Bab
North American Iron & Steel Co., Inc. 6g/No
United States Flagpole & Equipment Co., Inc. 6g/Un

bases for
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Acme Flagpole Div., John E. Lingo & Son, Inc. 6g/Ac
Baartol Co., Inc. 6g/Ba
Babcock-Davis Associates, Inc. 6g/Bab
North American Iron & Steel Co., Inc. 6g/No
United States Flagpole & Equipment Co., Inc. 6g/Un

telescopic
United States Flagpole & Equipment Co., Inc. 6g/Un

tilting
ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Acme Flagpole Div., John E. Lingo & Son, Inc. 6g/Ac
Baartol Co., Inc. 6g/Ba
Babcock-Davis Associates, Inc. 6g/Bab
North American Iron & Steel Co., Inc. 6g/No
United States Flagpole & Equipment Co., Inc. 6g/Un

frames—metal—mirror or picture

Designware Industries, Inc. 18g/De

grilles or curtains

(see also Sections 16, 23, 30)

cast and ornamental
(see also ornamental metal work .....6)
Armento Metal Arts Co. 6f/Ar
Auer Register Co. 31f/Au
Blum, Julius, & Co., Inc. 6e/BL
Blumcraft of Pittsburgh 6e/BLu
Brandt Corp. 31h/Br
Braun, J. G., Co. 6e/Bra
Construction Specialties, Inc. 20d/Co
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Guild Hall Studios, Inc. 23h/Gu
Harrington & King Perforating Co., Inc. 31f/Ha
Hendrick Mfg. Co. 31f/He
Independent Register Co. 31f/In

grilles or curtains *cont.*

cast and ornamental *cont.*
Klemp Metal Grating Corp. 6e/KL; 13a/KL
Livers Bronze Co. 6e/Li
McKinley Designs 6e/Mc
Oregon Brass Works 6f/Or
Superior Fireproof Door & Sash Co., Inc. 16b/Sup
United States Gypsum 6e/Un
United States Register Co. 31f/Un
Young Regulator Co. 31f/Yo

guards

(see also wirework .....22)

column, curb, doorway, turnstile, etc.
Blumcraft of Pittsburgh 6e/BLu
Blum, Julius, & Co., Inc. 6e/BL
Burt Equipment Co. Inc. 2i/Bu
Donley Brothers Co. 31L/Do
Flockhart Foundry Co. 6i/FL
Lawrence Metal Products, Inc. 6e/La
McKinley Iron Works 6i/Mc
Neenah Foundry Co. 6i/Ne
Stanley Hardware, Div. Stanley Works 18e/Sta
Woven Wire Products Assn. 22f/Wo

loading platform
Flockhart Foundry Co. 6i/FL
Neenah Foundry Co. 6i/Ne

wheel
Donley Brothers Co. 31L/Do
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Flockhart Foundry Co. 6i/FL
McKinley Iron Works 6i/Mc
Neenah Foundry Co. 6i/Ne

gutters, leaders and downspouts—shoes for

see leaders and downspouts—shoes for....6

identification plates

see plaques, tablets and name plates 6

ironwork

see ornamental metalwork 6

ladders

rungs for
Bustin Steel Products Inc. 13a/Bu
Donley Brothers Co. 31L/Do
Flockhart Foundry Co. 6i/FL
Hohmann & Barnard, Inc. 2i/Ho
McKinley Iron Works 6i/Mc
Neenah Foundry Co. 6i/Ne
Ryerson, Jos. T., & Son, Inc. 2d/Ry

shoes for
American Mason Safety Tread Co. ..13b/Ame

leaders and downspouts—shoes for

Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Flockhart Foundry Co. 6i/FL
McKinley Iron Works 6i/Mc
Neenah Foundry Co. 6i/Ne

letters, numbers and signs

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illuminated

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metal—aluminum, bronze or stainless steel

ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Acme Bulletin & Directory Board Corp. 23a/Ac
Andco Industries Corp. 6f/An
Armento Metal Arts Co. 6f/Ar
Art In Bronze Co., Inc. 6f/Art
Best Mfg. Co. 23a/Be
Colonial-Hites Co. 6f/Co
Hankins & Johann, Inc. 6e/Ha
Knight, H. W., & Son, Inc. 6f/Kn
Knight Mfg. Co. 6f/Kni
Lake Shore Markers Inc. 6f/La
Lynn-Sign Moulded Plastic Co., Inc. ..23a/Ly
Matthews, Jas. H., & Co. 6f/Ma
Nelco Metalcraft, Inc. 6f/Ne
New York Silicate Book Slate Co., Inc. 23a/Ne
Newman Brothers, Inc. 6f/New
Oregon Brass Works 6f/Or
Poblocki & Sons Co. 23e/Po
Republic Steel Corp. 6c/Re
Rudel Floor Strip Co., Inc. 13g/Ru
Southwell Co. 6f/So
Spanjer Bros., Inc. 6f/Sp
Spencer Industries, Inc. 6f/Spe; 23a/Sp
Supersine Co. 6f/Su
Tablet & Ticket Co. 23a/Ta
United States Bronze Sign Co., Inc. ..6f/Un
Wellman Products Co. 6f/We

plastic

ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Acme Bulletin & Directory Board Corp. 23a/Ac
Allen Marking Products, Inc. 23a/AL
Andco Industries Corp. 6f/An
Best Mfg. Co. 23a/Be
Cadillac Engravers 23a/Ca
Colonial-Hites Co. 6f/Co
Knight Mfg. Co. 6f/Kni
Lynn-Sign Moulded Plastic Co., Inc. ..23a/Ly
Nelco Metalcraft, Inc. 6f/Ne
New York Silicate Book Slate Co., Inc. 23a/Ne
Rohm & Haas Co. 7d/Roh
Southwell Co. 6f/So
Spanjer Bros., Inc. 6f/Sp
Spencer Industries, Inc. 23a/Sp
Tablet & Ticket Co. 23a/Tab

porcelain enamel

ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Andco Industries Corp. 6f/An
Colonial-Hites Co. 6f/Co
Davidson Enamel Products, Inc., Sub. Fenestra, Inc. 3c/Da

letters, numbers and signs *cont.*

porcelain enamel *cont.*

Lake Shore Markers Inc. 6f/La
Nelco Metalcraft, Inc. 6f/Ne
Poblocki & Sons Co. 23e/Po
Seaporcel Metals, Inc. 3c/Se
Southwell Co. 6f/So
Spanjer Bros., Inc. 6f/Sp
Spencer Industries, Inc. 6f/Spe; 23a/Sp
Supersine Co. 6f/Su
United States Bronze Sign Co., Inc. ...6f/Un

wood

Best Mfg. Co. 23a/Be
Lynn-Sign Moulded Plastic Co., Inc. ..23a/Ly
Spanjer Bros., Inc. 6f/Sp

lighting posts and standards

see *lighting fixtures:—posts and standards for* 33

lintels

Majestic Co., Inc. 31L/Ma
Truscon Steel Div., Republic Steel Corp. 17b/Tr

manhole steps

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masts

house

Hohmann & Barnard, Inc. 2h/Ho

radio, radar, television

Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Acme Flagpole Div., John E. Lingo & Son, Inc. 6g/Ac
North American Iron & Steel Co., Inc. 6g/No

metal

aluminum or aluminum alloy

Aluminum Co. of America...6a/ALu; 8b/ALu
Alumiseal Corp...10b/AL; 10b/ALi; 10b/ALm; 10b/ALw
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6a/Br
Erie Enameling Co. 3c/Er
Harkins & Johann, Inc. 16a/Ha
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka; 6a/Kai
Kawneer Co. 6d/Ka
North American Aviation, Inc. 3a/No
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Pittsburgh Plate Glass Co. 21/Pi
Revere Copper & Brass Inc. 6a/Ra
Reynolds Metals Co. 6a/Re
Rigidized Metals Corp. 6c/Ri
United States Gypsum 6e/Un

brass or bronze

American Brass Co. 6b/Am
Blum, Julius, & Co., Inc. 6e/BL

copper or copper alloy

American Brass Co. 6b/Am
Republic Steel Corp. 6c/Re
Revere Copper & Brass Inc. 8b/Re

metal *cont.*

corrosion and rust-resistant

Allegheny Ludlum Steel Corp. 6c/AL
Aluminum Co. of America 6a/ALu
Armco Steel Corp. 6c/Ar
Blum, Julius, & Co., Inc. 6e/BL
Byers, A. M., Co. 29a/By
Cornice Temper Zinc Alloy Div., Chomes Co., Inc. 8g/Co
Follansbee Steel Corp. 8b/Fo
Hydrometals, Inc. 6b/Hy
Illinois Zinc Co., Div. Hydrometals Inc..8g/IL
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka; 6a/Kai
Matthiessen & Hegeler Zinc Co. 8g/Mat
North American Aviation, Inc. 3a/No
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Republic Steel Corp. 6c/Re
Revere Copper & Brass Inc. 8b/Re
Reynolds Metal Co. 6a/Re
United States Gypsum 6e/Un
Washington Steel Corp. 6c/Wa

expanded

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heat-resistant

Republic Steel Corp. 6c/Re

porcelain enamel

AllianceWall Div., AllianceWare, Inc..6d/AL
Aluminum Co. of America 6a/ALu
Armco Steel Corp. 6c/Ar
Avoncraft, Div. Avondale Marine Ways, Inc. 2J/Av
Bettinger Corp. 3c/Be
Davidson Enamel Products, Inc., Sub. Fenestra, Inc. 3c/Da
Erie Enameling Co. 3c/Er
Ingram-Richardson Mfg. Co. 3c/Ing
Kawneer Co. 6d/Ka
Mirawal Div., Birdsboro Steel Foundry & Machine Co. 6d/Mi
North American Aviation, Inc. 3a/No
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Seaporcel Metals, Inc. 3c/Se
Wolverine Porcelain Enameling Co. ...3c/Wo

porcelain enamel—contractors for

Erie Enameling Co. 3c/Er
Ingram-Richardson Mfg. Co. 3c/Ing

stainless steel

Allegheny Ludlum Steel Corp. 6c/AL
Armco Steel Corp. 6c/Ar
Blum, Julius, & Co., Inc. 6e/BL
Erie Enameling Co. 3c/Er
North American Aviation, Inc. 3a/No
Republic Steel Corp. 6c/Re
Rigidized Metals Corp. 6c/Ri
Washington Steel Corp. 6c/Wa

steel or iron

Armco Steel Corp. 6c/Ar
Blum, Julius, & Co., Inc. 6e/BL
Byers, A. M., Co. 29a/By
Espro Tubing, Div. Union Asbestos & Rubber Co. 2f/Es
Erie Enameling Co. 3c/Er
McKinley Iron Works 6i/Mc
Republic Steel Corp. 6c/Re
Rigidized Metals Corp. 6c/Ri
United States Gypsum 6e/Un

products

metal *cont.*

terne

Follansbee Steel Corp. 8b/Fo

trim

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zinc

Hydrometals, Inc. 6b/Hy
Mathiessen & Hegler Zinc Co. 8g/Mat

mouldings and cornices—metal

Acme Metal Molding Co. 21/Ac
AllianceWall Div., AllianceWare, Inc..6d/AL
Aluminum Co. of America 6a/ALu
Blum, Julius, & Co., Inc. 6e/BL
Brandt Corp. 31h/Br
Braun, J. G., Co. 6a/Br; 6e/Bra
Himmel Brothers Co. 21/Hi
Johns-Manville 7d/Jo
Kawneer Co. 21/Kaw
Marsh Wall Products, Inc., Sub.
Masonite Corp. 14b/Ma
McKinley Designs 6e/Mc
Mirawal Div., Birdsboro Steel Foundry & Machine Co. 6d/Mi
National Store Fronts Co. Inc.....16a/Nat
Newman Brothers, Inc. 6f/New
Pittsburgh Plate Glass Co. 21/Pi
Rebco, Inc. 21/Re
Republic Steel Corp. 6c/Re
Rigid Metal Products Inc. 21/Ri
United States Bronze Sign Co., Inc. ..6f/Un
United States Plywood Corp. 5b/Un
Virginia Metal Products, Inc. 22a/Vi

name plates

see *plaques, tablets and name plates*.....6

ornamental metalwork

ironwork—cast or wrought

Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra
Central Wire & Iron Works, Inc. 6h/Ce
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Flour City Ornamental Iron Co. 16a/FL
Grossman Steel Stair Corp. 6h/Gr
Guild Hall Studios, Inc. 23h/Gu
Harrington & King Perforating Co., Inc. .....31f/Ha.
McKinley Designs 6e/Mc
Michel & Pfeffer Iron Works, Inc. 6e/Mi
Rambusch 23h/Ra
United States Bronze Sign Co., Inc....6f/Un

non-ferrous

Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Aluminum Co. of America 6a/ALu
Armento Metal Arts Co. 6f/Ar
Blum, Julius, & Co., Inc. 6e/BL
Blumcraft of Pittsburgh 6e/BLu
Braun, J. G., Co. 6a/Br; 6e/Bra
Construction Specialties, Inc. 19e/Con

ornamental metalwork *cont.*

non-ferrous *cont.*

Fiske, J. W., Architectural Metals, Inc..6e/Fi
Flour City Ornamental Iron Co. 16a/FL
Guild Hall Studios, Inc. 23h/Gu
Hankins & Johnson, Inc. 6e/Ha
Harrington & King Perforating Co., Inc. 31f/Ha
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka; 6a/Kai
Klemp Metal Grating Corp....6e/KL; 13a/KL
Livers Bronze Co. 6e/Li
Limbach Co. 8b/Li
Limbach Co., Curtain Wall Dept.....3a/Li
McKinley Designs 6e/Mc
Michel & Pfeffer Iron Works, Inc. 6e/Mi
Moynahan Bronze Co. 3a/Mo
Nelco Metalcraft, Inc. 6f/Ne
Oregon Brass Works 6f/Or
Rambusch 23h/Ra
Republic Steel Corp. 6c/Re
Rigidized Metals Corp. 6c/Ri
Southwell Co. 6f/So
United States Bronze Sign Co., Inc. ..6f/Un
United States Gypsum 6e/Un
Wellman Products Co. 6f/We

steel or stainless steel

ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Armento Metal Arts Co. 6f/Ar
Blum, Julius, & Co., Inc. 6e/BL
Fiske, J. W., Architectural Metals, Inc..6e/Fi
Flour City Ornamental Iron Co. 16a/FL
Grossman Steel Stair Corp. 6h/Gr
Harrington & King Perforating Co., Inc. 31f/Ha
Limbach Co. 8b/Li
Limbach Co., Curtain Wall Dept.....3a/Li
McKinley Designs 6e/Mc
Michaels Art Bronze Co. 3a/Mic
Michel & Pfeffer Iron Works, Inc.....6e/Mi
Moynahan Bronze Co. 3a/Mo
Nelco Metalcraft, Inc. 6f/Ne
Rambusch 23h/Ra
Republic Steel Corp. 6c/Re
Rigidized Metals Corp. 6c/Ri
Robberson Steel Co. 35/Ro
Superior Fireproof Door & Sash Co., Inc. 16b/Sup
United States Bronze Sign Co., Inc. ..6f/Un
United States Gypsum 6e/Un

pipe

(see also pipe; piping and tubing.....29)
Aluminum Co. of America 6a/ALu
Blum, Julius, & Co., Inc. 6e/Bl
Braun, J. G., Co. 6a/Br
Kaiser Aluminum & Chemical Sales, Inc. 6a/Kai; 6a/Ka
Lead Industries Assn.....29a/Le
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Republic Steel Corp. 29a/Rep
Republic Steel Corp., Steel & Tubes Div. 2f/Re
Revere Copper & Brass Inc. 29a/Rev
Reynolds Metals Co. 6a/Re

plaques, tablets and name plates

ABC Bulletin and Directory Co., Assoc. Nelson-Harkins Industries 23a/Ab
ABC Letter Co., Affil. Nelson-Harkins Industries 6f/Ab
Acme Metal Moulding Co. 21/Ac
Allen Marking Products, Inc. 23a/AL
Armento Metal Arts Co. 6f/Ar
Art in Bronze Co., Inc. 6f/Art
Brookline Industries Inc. 18e/Br
Cadillac Engravers 23a/Ca
Colonial-Hites Co. 6f/Co
Flour City Ornamental Iron Co. 16a/FL
International Bronze Tablet Co., Inc....6f/In
Knight Mfg. Co. 6f/Kni
Lake Shore Markers Inc. 6f/La
Livers Bronze Co. 6e/Li
Mattews, Jas. H., & Co. 6f/Ma
Nelco Metalcraft, Inc. 6f/Ne
Newman Brothers, Inc. 3a/Ne; 6f/New
Oregon Brass Works 6f/Or
Rambusch 23h/Ra
Southwell Co. 6f/So
Spanjer Bros., Inc.....6f/Sp
Spencer Industries, Inc. 23a/Sp
Supersine Co. 6f/Su
United States Bronze Sign Co., Inc.....6f/Un
Wellman Products Co. 6f/We

porcelain enamel

(see also metal:—porcelain enamel.....6)

copings

see *copings:—porcelain enamel* 8

curtain walls

see *curtain walls—porcelain enamel*.....3

eave strut cover, fascia, soffit, etc.

Bettinger Corp. 3c/Be
Challenge Stamping & Porcelain Co...3c/Ch
Davidson Enamel Products, Inc., Sub.
Fenestra, Inc. 3c/Da
Erie Enameling Co.....3c/Er
Kawneer Co. 6d/Ka
Mirawal Div., Birdsboro Steel Foundry & Machine Co. 3c/Mi; 6d/Mi
Seaporcel Metals, Inc. 3c/Se

facings and veneers

Challenge Stamping & Porcelain Co...3c/Ch
Davidson Enamel Products, Inc. Sub.
Fenestra, Inc. 3c/Da
Erie Enameling Co. 3c/Er
Kawneer Co. 6d/Ka
Mirawal Div., Birdsboro Steel Foundry & Machine Co. 3c/Mi; 6d/Mi

panels

see *panels and boards—prefinished:—porcelain enamel* 14

roofing

see *roofing:—porcelain enamel* 8

sheet

see *sheet, strip, plate:—porcelain enamel*..6

siding

see *siding:—porcelain enamel* 8

posts

building

see *structural shapes* 2

rail

see *railings* 6

railings

brackets for

Blum, Julius, & Co., Inc.....6e/BL
Blumcraft of Pittsburgh.....6e/BLu
Braun, J. G., Co. 6a/Br; 6e/Bra
Fiske, J. W., Architectural Metals, Inc...6e/Fi
Kaiser Aluminum & Chemical
Sales, Inc. 6a/Ka; 6a/Kai
Lawrence Metal Products, Inc. 6e/La
McKinley Designs 6e/Mc
McKinley Iron Works 6i/Mc
Michel & Pfeffer Iron Works, Inc. 6e/Mi
Reynolds Metals Co. 6a/Re

cast or wrought

Blum, Julius, & Co., Inc.....6e/BL
Blumcraft of Pittsburgh.....6e/BLu
Braun, J. G., Co. 6e/Bra
Fiske, J. W., Architectural Metals, Inc...6e/Fi
Grossman Steel Stair Corp.....6h/Gr
Lawrence Metal Products, Inc. 6e/La
Livers Bronze Co. 6e/Li
McKinley Designs 6e/Mc
Michel & Pfeffer Iron Works, Inc. 6e/Mi
Newman Brothers, Inc. 3a/Ne
Revere Copper & Brass Inc. 6a/Ra
Woodbridge Ornamental Iron Co. ..6h/Woo

extruded

Blum, Julius, & Co., Inc.....6e/BL
Blumcraft of Pittsburgh.....6e/BLu
Braun, J. G., Co. 6a/Br; 6e/Bra
Hankins & Johnson, Inc. 6e/Ha
Kaiser Aluminum & Chemical
Sales, Inc. 6a/Ka; 6a/Kai
Lawrence Metal Products, Inc. 6e/La
Limbach Co. 8b/Li
Limbach Co., Curtain Wall Dept. 3a/Li
Livers Bronze Co. 6e/Li
McKinley Designs 6e/Mc
Newman Brothers
Inc. 3a/Ne; 6e/New
Ryerson, Jos. T., & Son, Inc. 2d/Ry
Woodbridge Ornamental Iron Co. ..6h/Woo

office

see *partitions:—office* 22

ornamental

see *ornamental metalwork* 6

pipe, chain and fittings for

Blum, Julius, & Co., Inc.....6e/BL
Blumcraft of Pittsburgh 6e/BLu; 6e/BLy
Braun, J. G., Co. 6a/Br; 6e/Bra
Fiske, J. W., Architectural Metals, Inc...6e/Fi
Grossman Steel Stair Corp.....6h/Gr
Kaiser Aluminum & Chemical
Sales, Inc. 6a/Kai
Livers Bronze Co. 6e/Li
McKinley Designs 6e/Mc
Newman Brothers, Inc. 6e/New
Reynolds Metals Co. 6a/Re
Ryerson, Jos. T., & Son, Inc. 2d/Ry

railings *cont.*

pipe—prefabricated

Blumcraft of Pittsburgh.....6e/BLu
Grossman Steel Stair Corp.....6h/Gr

plastic handrails for

Blum, Julius & Co. 6e/BL

wood—aluminum

Blumcraft of Pittsburgh 6e/BLu
Fentron Industries, Inc. 17a/Fen
Revere Copper & Brass Inc. 6a/Ra

woven wire

Blumcraft of Pittsburgh.....6e/BLu
Woven Wire Products Assn.....22f/Wo

rods and bars

aluminum or aluminum alloy

Aluminum Co. of America 6a/ALu
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co.....6a/Br
Kaiser Aluminum & Chemical
Sales, Inc. 6a/Ka; 6a/Kai
Olin Mathieson Chemical Corp.,
Metals Div. 6a/OL
Pittsburgh Plate Glass Co.....21/Pi
Reynolds Metals Co.....6a/Re

concrete reinforcing

see *reinforcing:—rods, bars or cables*.....2

copper or copper alloy

American Brass Co.....6b/Am
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra

lightning

see *lightning protection*.....32

stainless steel

Allegheny Ludlum Steel Corp.....6c/AL
Armco Steel Corp. 6c/Ar
Blum, Julius, & Co., Inc. 6e/BL
Byers, A. M., Co. 29a/By
Republic Steel Corp.....6c/Re

steel

Armco Steel Corp. 6c/Ar
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra
Byers, A. M., Co. 29a/By

wrought iron

Byers, A. M., Co. 29a/By

seat brackets

Dayton Sure-Grip & Shore Co.....2i/Da
Hohmann & Barnard, Inc.....2i/Ho
McKinley Iron Works 6i/Mc
Meadow Steel Products, Inc.....2i/Me
Richmond Screw Anchor Co., Inc. 2i/Ri
Superior Concrete Accessories, Inc.....2i/Su

sheet, strip, plate

aluminum or aluminum alloy

Aluminum Co. of America 6a/ALu
Alumiseal
Corp...10b/AL; 10b/ALi; 10b/ALm; 10b/ALw
Erie Enameling Co. 3c/Er
Fenestra, Inc. 2c/Fe
Himmel Brothers Co.....21/Hi
Kaiser Aluminum & Chemical
Sales, Inc. 6a/Ka; 6a/Kai

sheet, strip, plate *cont.*

aluminum or aluminum alloy *cont.*

Kawneer Co. 6d/Ka
Olin Mathieson Chemical Corp.,
Metals Div. 6a/OL
Pittsburgh Plate Glass Co.....21/Pi
Revere Copper & Brass Inc. 6a/Ra
Reynolds Metals Co.....6a/Re
Rigidized Metals Corp. 6c/Ri
United States Gypsum 6e/Un

asphalt or asbestos-covered

see *roofing; siding*.....8

copper, copper alloy, or copper foil

American Brass Co.....6b/Am
American Brass Co., Sub Anaconda
Co. 8b/Am
Braun, J. G., Co. 6e/Bra
Cheney Flashing Co. 8g/Che
Revere Copper & Brass Inc.....8b/Re

enameled

see *sheet, strip, plate:—porcelain enamel*..6

enameling

Armco Steel Corp.....6c/Ar

expanded metal

see *lath:—metal—expanded or perforated* 12

formed and textured

Allegheny Ludlum Steel Corp.....6c/AL
Aluminum Co. of America 6a/ALu
Cheney Flashing Co. 8g/Che
Erie Enameling Co. 3c/Er
Himmel Brothers Co.....21/Hi
Kaiser Aluminum & Chemical
Sales, Inc. 6a/Ka; 6a/Kai
Olin Mathieson Chemical Corp.,
Metals Div. 6a/OL
Pittsburgh Plate Glass Co.....21/Pi
Republic Steel Corp. 6c/Re
Revere Copper & Brass Inc. 6a/Ra
Reynolds Metals Co.....6a/Re
Rigidized Metals Corp. 6c/Ri
Ryerson, Jos. T., & Son, Inc. 2d/Ry
United States Gypsum 6e/Un
Washington Steel Corp. 6c/Wa

perforated

Allegheny Ludlum Steel Corp.....6c/AL
Fenestra, Inc. 2c/Fe
Harrington & King Perforating Co.,
Inc. 31f/Ha
Hendrick Mfg. Co.....31f/He
Reynolds Metals Co. 3a/Re
Rigidized Metals Corp. 6c/Ri
Ryerson, Jos. T., & Son, Inc. 2d/Ry
Washington Steel Corp.....6c/Wa

porcelain enamel

AllianceWall Div., AllianceWare,
Inc. 6d/AL
Aluminum Co. of America 6a/ALu
Armco Steel Corp. 6c/Ar
Davidson Enamel Products, Inc., Sub.
Fenestra, Inc. 3c/Da
Erie Enameling Co. 3c/Er
Himmel Brothers Co. 21/Hi
Ingram-Richardson Mfg. Co.....3c/Ing
Kawneer Co. 6d/Ka
Mirawal Div., Birdsboro Steel Foundry
& Machine Co. 3c/Mi; 6d/Mi
Olin Mathieson Chemical Corp.,
Metals Div. 6a/OL

products

sheet, strip, plate *cont.*

porcelain enamel *cont.*

Seaporcel Metals, Inc. 3c/Se
Wolverine Porcelain Enameling Co. ...3c/Wo

stainless steel

Allegheny Ludlum Steel Corp. 6c/AL
Armco Steel Corp.....6c/Ar
Byers, A. M., Co. 29a/By
Erie Enameling Co. 3c/Er
Republic Steel Corp.....6c/Re
Rigidized Metals Corp. 6c/Ri
Washington Steel Corp. 6c/Wa

steel

Armco Steel Corp.....6c/Ar
Bettinger Corp. 8b/Be
Braun, J. G., Co. 6e/Bra
Byers A. M., Co. 29a/By
Erie Enameling Co. 3c/Er
Fenestra, Inc. 2c/Fe
Rigidized Metals Corp. 6c/Ri
Ryerson, Jos. T., & Son, Inc. 2d/Ry
United States Gypsum 6e/Un

steel—for painting

Armco Steel Corp.....6c/Ar
Braun, J. G., Co. 6e/Bra
Byers A. M., Co. 29a/By
Republic Steel Corp.....6c/Re
United States Gypsum 6e/Un

steel or iron—annealed, aluminized, galvanized or black

Armco Steel Corp. 6c/Ar
Bethlehem Steel Co.....2f/Bet
Bettinger Corp. 8b/Be
Braun, J. G., Co. 6e/Bra
Erie Enameling Co. 3c/Er
Republic Steel Corp.....6c/Re
United States Gypsum 6e/Un

steel or iron—copper-alloyed

Armco Steel Corp.....6c/Ar
Bethlehem Steel Co.....2f/Bet
Cheney Flashing Co. 8g/Che
Republic Steel Corp.....6c/Re

terne

Follansbee Steel Corp. 8b/Fo

wrought iron

Byers A. M., Co. 29a/By

zinc or lead

Hydrometals, Inc. 6b/Hy
Illinois Zinc Co., Div. Hydrometals Inc. 8g/IL
Lead Industries Assn.....29a/Le
Matthiessen & Hegeler Zinc Co. 8g/Mat

signs and letters

see letters, numbers and signs 6
directories and signs 23

spandrels—metal

(see also spandrels—stone:—specific type..4
spandrels—glass .....7)

aluminum

Erie Enameling Co. 3c/Er
General Bronze Corp. 3a/Ge
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka
Newman Brothers, Inc. 3a/Ne

spandrels—metal *cont.*

aluminum *cont.*

Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Pomeroy, S. H., Co. 17b/Po
Robertson, H. H., Co. 3c/Ro
Southern Sash Sales & Supply Co., Inc. 3a/Sou

brass or bronze

General Bronze Corp. 3a/Ge

porcelain enamel

Bettinger Corp. 3c/Be
Challenge Stamping & Porcelain Co...3c/Ch
Davidson Enamel Products, Inc., Sub. Fenestra, Inc. 3c/Da
General Bronze Corp. 3a/Ge
Erie Enameling Co. 3c/Er
Ingram-Richardson Mfg. Co. 3c/Ing
Olin Mathieson Chemical Corp. Metals Div. 6a/OL
Robertson, H. H., Co. 3c/Ro
Seaporcel Metals, Inc. 3c/Se
Stylon Corp. 13c/Sty

steel or stainless steel

Allegheny Ludlum Steel Corp. 6c/AL
Erie Enameling Co. 3c/Er
General Bronze Corp. 3a/Ge
Pomeroy, S. H., Co. 17b/Po
Robertson, H. H., Co. 3c/Ro

stable equipment

Fiske, J. W., Architectural Metals, Inc..6e/Fi

stairs—metal

(see also stairways—disappearing .....23)
Central Wire & Iron Works, Inc. 6h/Ce
Grossman Steel Stair Corp.....6h/Gr
Limbach Co., Curtain Wall Dept.....3a/Li
Woodbridge Ornamental Iron Co. ..6h/Woo

contractors for

Duvinage Corp. 6h/Duv
Grossman Steel Stair Corp.....6h/Gr

nosings for

American Abrasive Metals Co.....13b/Am
American Mason Safety Tread Co...13b/Ame
Blum, Julius, & Co., Inc.....6e/BL
Braun, J. G., Co. 6e/Bra
Dravo Corp., Machinery Div. 13a/Dr
Irving Subway Grating Co., Inc. 13a/Ir
Kerrigan Iron Works, Co. 13a/Ker
McKinley Iron Works.....13b/Mc
Woodbridge Ornamental Iron Co....6h/Woo
Wooster Products Inc. 13b/Wo

spiral

American Abrasive Metals Co.....13b/Am
Central Wire & Iron Works, Inc. 6h/Ce
Duvinage Corp. 6h/Duv
Fiske, J. W., Architectural Metals, Inc. .6e/Fi
Limbach Co. 8b/Li
McKinley Iron Works 13b/Mc
Woodbridge Ornamental Iron Co....6h/Woo

stringers for

Bilco Co. 16J/Bi
Blum, Julius, & Co., Inc. 6e/BL
Grossman Steel Stair Corp.....6h/Gr
Woodbridge Ornamental Iron Co....6h/Woo

stairs—metal *cont.*

treads and risers for

(see also stair treads—safety.....13)
American Abrasive Metals Co.....13b/Am
American Floor Products Co. 13i/Ama
American Mason Safety Tread Co...13b/Ame
Blum, Julius, & Co., Inc. 6e/BL
Borden Metal Products Co. 13a/Bo
Dravo Corp., Machinery Div. 13a/Dr
Duvinage Corp. 6h/Duv
Grossman Steel Stair Corp.....6h/Gr
Irving Subway Grating Co., Inc. 13a/Ir
Kerrigan Iron Works Co. 13a/Ker
Koffler Sales Corp. 13i/Ko
McKinley Iron Works.....13b/Mc
Penn Metal Co., Inc. 13a/Pe
United States Gypsum 6e/Uni; 13a/Un
Woodbridge Ornamental Iron Co....6h/Woo
Wooster Products Inc. 13b/Wo

standards

for shelving

see shelving:—standards for 23

lighting

see lighting fixtures:—posts and standards for 33

sign or traffic

Supersine Co. 6f/Su
Union Metal Mfg. Co. 33c/Un

tablets

see plaques, tablets and name plates.....6

trim

metal

see trim:—metal 12
surfacing and paneling:—mouldings and trim for—metal 14

tubing

aluminum or aluminum alloy

Aluminum Co. of America 6a/ALu
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6a/Br
Himmel Brothers Co. 21/Hi
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka; 6a/Kai
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Reynolds Metals Co. 6a/Re

condenser or heater

American Brass Co., Sub. Anaconda Co. 29a/Am
Carrier Corp. 31a/Car
Chase Brass & Copper Co., Inc., Sub. Kennecott Copper Corp.....29a/Ch
Lewin-Mathes Co., Div. Cerro de Pasco Corp. 29a/Lew
Mueller Brass Co.....29a/Mu
Republic Steel Corp. 29a/Rep
Revere Copper & Brass Inc. 29a/Rev

copper or copper alloy

American Brass Co. 6b/Am
American Brass Co., Sub. Anaconda Co. 29a/Am
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra

tubing *cont.*

copper or copper alloy *cont.*
Chase Brass & Copper Co., Inc., Sub. Kennecott Copper Corp.....29a/Ch
Lewin-Mathes Co., Div. Cerro de Pasco Corp. 29a/Lew
Mueller Brass Co.....29a/Mu
Revere Copper & Brass Inc. 29a/Rev

flexible
see *hose—flexible:—exhaust, supply, etc.*..31

laminated fiber
see *ducts:—fiber* 31

rust-resistant
Allegheny Ludlum Steel Corp. 6c/AL
Aluminum Co. of America 6a/ALu
American Brass Co., Sub. Anaconda Co. 29a/Am
Blum, Julius, & Co., Inc 6e/BL
Chase Brass & Copper Co., Inc., Sub. Kennecott Copper Corp.....29a/Ch
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka; 6a/Kai
Lewin-Mathes Co., Div. Cerro de Pasco Corp. 29a/Lew
Mueller Brass Co.....29a/Mu
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Republic Steel Corp. 29a/Rep
Republic Steel Corp., Steel & Tubes Div. 2f/Re
Revere Copper & Brass Inc. 29a/Rev
Reynolds Metals Co. 6a/Re

seamless—drawn or extruded
Allegheny Ludlum Steel Corp. 6c/AL
Aluminum Co. of America 6a/ALu
American Brass Co. 6b/Am
American Brass Co., Sub. Anaconda Co. 29a/Am

tubing *cont.*

seamless—drawn or extruded *cont.*
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6a/Br; 6e/Bra
Chase Brass & Copper Co., Inc., Sub. Kennecott Copper Corp.....29a/Ch
Himmel Brothers Co. 21/Hi
Kaiser Aluminum & Chemical Sales, Inc. 6a/Ka
Lewin-Mathes Co., Div. Cerro de Pasco Corp. 29a/Lew
Mueller Brass Co.....29a/Mu
Olin Mathieson Chemical Corp., Metals Div. 6a/OL
Revere Copper & Brass Inc. 29a/Rev
Reynolds Metals Co. 6a/Re

steel or stainless steel
Allegheny Ludlum Steel Corp. 6c/AL
Blum, Julius, & Co., Inc. 6e/BL
Braun, J. G., Co. 6e/Bra
Espro Tubing, Div. Union Asbestos & Rubber Co. 2f/Es
Republic Steel Corp. 29a/Rep
Republic Steel Corp., Steel & Tubes Div. 2f/Re
Ryerson, Jos. T., & Son, Inc. 2d/Ry
Victor Steel Products Corp. 2f/Vi

welded
Allegheny Ludlum Steel Corp. 6c/AL
Blum, Julius, & Co., Inc 6e/BL
Braun, J. G., Co. 6e/Bra
Espro Tubing, Div. Union Asbestos & Rubber Co. 2f/Es
Republic Steel Corp. 29a/Rep
Republic Steel Corp., Steel & Tubes Div. 2f/Re
Ryerson, Jos. T., & Son, Inc. 2d/Ry

veneers—porcelain enamel

see *porcelain enamel:—facings and veneers* 6
panels and boards—prefinished:—plywood or hardboard—plastic or porcelain-faced; — steel — porcelain enameled; surfacing and paneling:—plywood or hardboard —plastic or porcelain-faced;—porcelain enamel 14

walls

area
see *area walls:—metal* 6

concrete—precast
see *panels—building:—concrete—precast* ..3

curtain
see *curtain walls* 3

fire-underwriters' rated
see *curtain walls—steel or stainless steel: —fire-underwriters' rated; panels— —building:—fire-underwriters' rated*. .3

glass
see *curtain walls—glass spandrels* 3

metal—insulated
see *curtain walls—specific type metal; panels—building:—metal—insulated*..3
surfacing and paneling:—metal 14

weathervanes

Aabec Pole Div., Morgan-Francis Co., Inc. 6g/Aa
Fiske, J. W., Architectural Metals, Inc. .6e/Fi

6a
ALu

1960

ALCOA ALUMINUM IN ARCHITECTURE

finishes

alloys

specifications

patterned sheet



ALUMINUM COMPANY OF AMERICA

ARCHITECTURAL ADVANTAGES OF ALUMINUM

Corrosion resistance—Aluminum is highly resistant to weather and to corrosive industrial and seacoast atmospheres. Although exposure creates surface oxidation and dulling, the metal is not weakened structurally. The oxide formed builds itself up as an added protective coating so that the weathering rate soon tends to level off. The average penetration of weathering on architectural alloys is not much deeper after a half century than after two years. Exposure in a typical industrial atmosphere produces pitting to an average depth of only 3 mils in the aluminum after 52 years. Thus, a sheet .032″ thick would still retain 29 mils of sound metal. Corrosion resistance can be further increased by Alumilite* or Alcoa Architectural Color finishes.

Light weight—Aluminum weighs about one-third as much as equal volumes of other common building metals. This brings substantial economies through reductions in dead load, in shipping costs, in size of erection crews and in installation time.

High strength—While the most common architectural alloys have ultimate tensile strengths in the range of 22,000 psi, others with strengths up to 68,000 psi are available.

High electrical conductivity—The conductivity of aluminum alloy EC (electrical conductor) is 61% International Annealed Copper Standards. The current-carrying capacity is 84% that of a similar volume of copper. By increasing the volume of aluminum, its conductivity can be made to equal that of copper, yet do so with about half the weight and for lower cost—ideal features for electrical distribution systems.

High heat conductivity—When rapid thermal conduction is a requirement, aluminum is, pound for pound, the most efficient conductor among common metals.

High reflectivity of light and radiant heat—The natural surface of aluminum is highly reflective to both light and radiant energy in the invisible wave lengths—a characteristic which can be used to turn back unwanted sun heat from buildings. Special surface treatments can boost aluminum's light reflectivity to 90% of the incident visible rays, making the metal a desirable component in lighting fixtures.

Versatility—The various forms in which aluminum is commercially produced and its receptivity to embossing and finishing make it adaptable to every architectural design requirement. Aluminum's easy "workability," along with the use of common fabricating methods and new welding techniques, extend this versatility to the fabricator and the erector.

Nonsparking—There are no inherent sparking characteristics in aluminum to present explosion hazards.

Fine appearance—The natural mill finish of aluminum is suitable for many architectural uses without further surface preparation. A variety of texture and color finishes may be readily applied for decorative purposes.

Low maintenance—Aluminum needs no painting or other protective coatings. While occasional washings remove accumulated dirt and renew the appearance, even this is not necessary to maintain structural integrity. Where a continued bright appearance is desired, an Alumilite finish will make maintenance easier. Where outside surfaces are not to be maintained, an Alcoa Architectural Color finish should give lasting beauty.

* Trade Name of Aluminum Company of America

GENERAL ARCHITECTURAL FINISHES

unfinished

Mill or As-fabricated Finish—The surface which naturally results from extrusion, rolling, casting or other metal processing practice. It will vary somewhat for different alloys and tempers. Such surfaces are not unpleasant; and subsequent weathering grays the metal uniformly.

texture finishes†

Various surface qualities from smooth to rough are created on aluminum by mechanical and chemical means. These effects may be used as the final surface of the metal or as pretreatments before additional finishes such as Alumilite. TEXTURE FINISHES should be protected against handling marks by a protective coating. (See CONSTRUCTION PROTECTION.)

Bright or Buffed Finish—A smooth, highly lustrous finish produced by muslin buffing wheels and sometimes by hand operations. Buffing is usually considered too costly and difficult to apply on large areas, but is suitable for narrow elements when a high gloss finish is desired.

Polished and buffed A1
Buffed direct A2

Satin Finishes—A soft texture of fine parallel scratch lines produced in varying degrees of fineness by abrasive methods. It is not recommended for large flat areas due to the difficulty of obtaining a uniform appearance, but works well on store fronts, windows, mullions or trim.

Centerless belt polish, 180 emery (for tube) . . . . . B
Belt polish, 180-220 emery C1
Hand rubbed, steel wool C2
Compound or brush back sander (such as Vonnegut wheel) C3
Belt polish, 160-180 emery . . . . . D
Belt polish, 120-140 emery . . . . . E

Sandblast Finish—A rough texture produced by compressed air and washed silica sand in various grades of coarseness. It should be protected by an Alumilite coating or lacquer. Sandblasting is recommended for castings.

Fine blast, 100 to 200 mesh G2
Medium blast, 40 to 50 mesh G3
Coarse blast, 16 to 20 mesh G4

Sand Burnish Finish—A uniform, matte surface created by loose sand, gravel, steel balls and an agitating process. It is particularly suited to castings or flat sheet . . . . . N

Caustic Etch or Frosted Finish—A low-cost, chemically produced matte surface with the appearance of finely etched glass. It is appropriate for windows, mullions and large sheet areas such as wall panels. Since etching can produce surfaces that vary in appearance, architects should request samples from the fabricator. Etched surfaces are especially subject to handling marks and should receive a lacquer coating of Alumilite finish immediately following etching R1

†See also Patterned Sheet, page 7.

Alumilite finish Hard oxide coating formed on aluminum by an electrolytic treatment. Suitable for interior or maintained exterior surfaces, an Alumilite finish provides a highly corrosion-resistant surface, resists dirt accumulation and retains the original appearance of the metal.

When applied according to Alcoa's recommendations, an Alumilite finish increases aluminum's resistance to abrasion and weather to a remarkable degree. The photomicrographs show results of a typical 10-year weathering test conducted at the oceanside near Point Judith, R.I., with pieces of bare aluminum and similar pieces having an Alumilite treatment. While the bare aluminum is still in excellent condition, it displays some shallow weather "pitting." The Alumilite-treated specimen, on the other hand, is virtually as good as new.

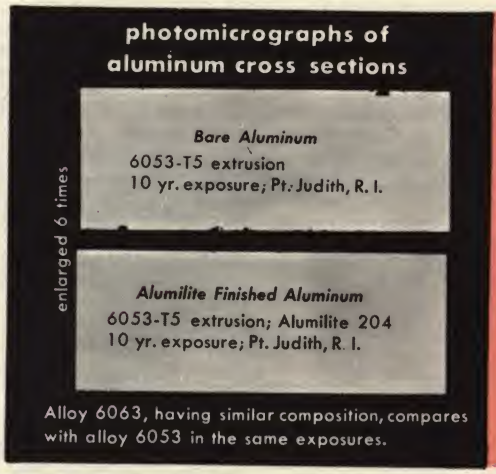
Because it is one of the smoothest surfaces available on any architectural metal, an Alumilite finish gives little foothold for dirt and cleans easily when desired. It is recommended for storefronts, doors, windows, trim, canopies, handrails, interior wall fascia—any element where a continued new-looking appearance is wanted and where maintenance will be provided. (NOTE: For a similar looking natural color aluminum finish on *exterior unmaintained* surfaces, such as curtain walls, Alcoa Architectural Gray 2010 should be specified.)

The appearance of an Alumilite finish may vary, depending upon the type of coating, the alloy on which it is formed and the surface pretreatment. Generally, No. 32 Alumilite Sheet, 6063 extrusion alloy and cast alloy F214 will match each other in appearance after comparable Alumilite treatments. Whenever possible, these are the alloys that should be specified when Alumilite finishes are to be employed and when a matching appearance is important. Where strength requirements dictate the use of other alloys, Alcoa will gladly assist in selecting treatments to secure the next best appearance match between components. (See also GUIDE FOR ALLOY SELECTION, page 4.)

To assure a proper finish, the Alumilite treatment number, coating weight and thickness should be specified following the table. When Alumilite is to be applied to one of the texture finishes, as it usually is, specify the appropriate texture or pretreatment symbol (see TEXTURE FINISHES) after the required Alumilite number.

Specification Example: (for Alumilite over a fine belt-polished satin texture on an extruded handrail subject to maximum abrasion)—*Aluminum handrail shall have Alumilite 215C1 treatment with a minimum coating thickness of .0008" and a minimum coating weight of 35 milligrams per square inch.*

Where Alumilite-treated surfaces are subject to stains and minor abrasions during construction, a protective coating is recommended. (See CONSTRUCTION PROTECTION.)



Alumilite Specification Guide

APPLICATION	SHEET AND EXTRUSIONS: ALUMILITE TREATMENT	SHEET AND EXTRUSIONS: MINIMUM COATING THICKNESS	SHEET AND EXTRUSIONS: MINIMUM COATING WT. PER SQ IN.	CASTINGS: ALUMILITE TREATMENT	CASTINGS: MINIMUM COATING THICKNESS	CASTINGS: MINIMUM COATING WT. PER SQ IN.
INTERIOR USE						
Minimum Abrasion—(such as picture molds, interior fascia, balusters)	202	.00025"	12 mg	702	.00025"	12 mg
Medium Abrasion—(such as door frames, baseboards, window stools, hardware)	204	.0004"	17 mg	704	.0004"	17 mg
Maximum Abrasion—(such as handrails)	215	.0008"	35 mg	714	.0006"	28 mg
EXTERIOR USE						
Maintained—(such as storefronts, entrance trim)	204	.0004"	17 mg	704	.0004"	17 mg
Maximum Abrasion—(such as maintained handrails)	215	.0008"	35 mg	714	.0006"	28 mg

Alcoa Duranodic finish Exceptionally hard anodic coatings available in light, medium and dark shades of brownish-gray. They are suited for 6063 extrusions that will be subject to much abrasion, such as in entrances, storefronts, railings; also used for curtain walls.†

Alcoa*Alumalure Durable baked enamel finish available in eleven attractive colors on industrial corrugated, ribbed and V-beam building sheets and on flat sheet stock.

Chemical conversion coatings Chemically produced finishes which combine with the aluminum surface and are available in shades of pale green, green-gray, yellow-green, tan. These are low-cost roofing finishes also used as a base for paint. Sources for chemical conversion coatings:
Alcoa Alrok* —various processors; *Architectural Alodine*—Amchem Co.; *Bonderite*—Parker Rust Proof Co.

Alcoa Architectural Color Electrochemically formed finish for curtain walls.†

Porcelain enamel Vitreous enamel coating well suited for exterior application.†

*Trademarks of Aluminum Company of America.
†See Alcoa insert under "Curtain Walls," *SWEET'S ARCHITECTURAL FILE*, 1960

CONSTRUCTION PROTECTION

A temporary protective coating is recommended for all texture finishes and Alumilite finishes on aluminum items where appearance is important. It provides protection during construction against mortar stains, minor abrasions, etc. One of the most-used protective coatings is a methacrylate-type lacquer, because it is clear and wears off unnoticed over a period of years. For other means of protection refer to the booklet, *Alcoa Architectural Aluminum—Care During Construction*, A I A File No. 15-J, latest edition.

Lacquer Specification: *Apply two sprayed coats of water-white methacrylate lacquer having a total minimum thickness of .0006", which when applied to the aluminum surface shall be capable of withstanding the action of lime mortar for a period of at least one week in an atmosphere of 100% relative humidity at 100° F, the action of 10% (by weight) muriatic acid for a period of six hours at 70° F, and the action of atmospheric weathering for a period of 12 months. The coating shall be applied in the manufacturer's plant to the exposed surfaces of all* (specify which) *components subject to staining from alkaline mortar and plaster, abrasion and other construction abuses. Before application of lacquer, the manufacturer shall remove all fabrication compounds, moisture, dirt accumulations and other foreign materials to insure proper lacquer adhesion.*

ARCHITECTURAL ALUMINUM ALLOYS

A typical mechanical properties of alloys

ALUMINUM ALLOY NO. ①		ULTIMATE TENSILE STRENGTH LB PER SQ IN.	YIELD STRENGTH② LB PER SQ IN.	SHEAR STRENGTH③ LB PER SQ IN.
WROUGHT ALLOYS				
1100	-H14	18,000	17,000	11,000
1135	-O	12,000	4,000	8,000
	-H12	14,000	13,000	9,000
	-H14	16,000	15,000	10,000
2024	-T4	68,000	47,000	41,000
3003	-O	16,000	6,000	11,000
3003	-H14	22,000	21,000	14,000
Alclad 3003	-H14	22,000	21,000	14,000
3004	-H34	35,000	29,000	18,000
5005	-O	18,000	6,000	11,000
5005	-H12	20,000	19,000	14,000
5050	-H34	28,000	24,000	18,000
5052	-H34	38,000	31,000	21,000
6061	-T4	35,000	21,000	24,000
6061	-T6	45,000	40,000	30,000
6062	-T6	45,000	40,000	30,000
6063	-T4	25,000	13,000	16,000
6063	-T42	22,000	13,000	14,000
6063	-T5	27,000	21,000	17,000
6063	-T6	35,000	31,000	22,000
6063	-T832	42,000	39,000	27,000
No. 32 Alumilite Sheet	-O	12,000	4,000	8,000
	-H12	15,000	14,000	9,000
	-H14	17,000	16,000	10,000
Anoclad Type 10 Sheet	-O	12,000	4,000	8,000
	-H12	15,000	14,000	9,000
	-H14	17,000	16,000	10,000
	-H16	19,000	18,000	11,000
	-H18	22,000	20,000	12,000
Anoclad Sheet, Types 20, 30, 40	-O	16,000	6,000	11,000
	-H111	16,000	8,000	11,000
	-H12	19,000	18,000	12,000
	-H14	22,000	21,000	14,000

No. 1 Porcelain Enameling Sheet—Properties after enameling, without subsequent aging, approach those of 6061-T4.④

No. 3 Porcelain Enameling Sheet—Properties after enameling are similar to those of 3003-O.④

Anoclad Type 10 Extrusions	-T42	22,000	13,000	14,000
	-T5	27,000	21,000	17,000
	-T6	35,000	31,000	22,000
Anoclad Extrusions, Types 20, 30, 40	-T61	32,000	25,000	20,000

No. 1 Porcelain Enameling Extruded Shapes—Properties after enameling, without subsequent aging, approach those of 6061-T4.④

SAND CASTING ALLOYS			
43-F	19,000	8,000	14,000
214-F	25,000	12,000	20,000
F214-F	21,000	12,000	17,000
356-T6	33,000	24,000	26,000

Mechanical properties are obtained on ASTM specimens. Minimum guaranteed values vary with the commodity and are not given.

For all Alcoa alloys, wrought and cast, the following data apply: (a) Young's modulus of elasticity may be taken as 10,300,000 lb per sq in.; (b) Modulus of rigidity may be taken as 3,800,000 lb per sq in.; (c) Poisson's ratio is .33; (d) Bearing strength is equal to 1.8 times the tensile strength, provided the edge distance, in the direction of stressing, is not less than twice the diameter of the hole.

① Other tempers from soft to full hard are available offering varying properties.

② Yield strength is the stress at which the material exhibits a permanent set of .2 per cent.

③ Shearing strengths are single-shear values obtained from double-shear tests.

④ Exact properties after enameling are determined by firing temperature, rate of cooling and aging time, all of which may vary slightly with the enamel processor.

B guide for alloy selection

COMMERCIAL ALUMINUM FORM	GENERAL-PURPOSE ALLOYS: REGULAR DUTY	GENERAL-PURPOSE ALLOYS: HIGHER STRENGTH	ALLOYS FOR APPEARANCE MATCH
SHEET AND PLATE	1100 3003 Alclad 3003	5050 5052	No. 32 Alumilite Sheet—Appearance match with 6063 extrusions, tube and pipe, and F214 castings after Alumilite treatment.④ Alcoa Anoclad Sheet Type 10—Appearance match with Alcoa Anoclad Extrusions Type 10 in Alcoa Architectural Colors, 10 series.①④ Alcoa Anoclad Sheet Type 20—Appearance match with Alcoa Anoclad Extrusions Type 20 in Alcoa Architectural Colors, 20 series.②④ Alcoa Anoclad Sheet Type 30—Appearance match with Alcoa Anoclad Extrusions Type 30 in Alcoa Architectural Gray 2030.④ Alcoa Anoclad Sheet Type 40—Appearance match with Alcoa Anoclad Extrusions Type 40 in Alcoa Architectural Colors, 40 series.③④ Alloy 1135—Appearance match where excessive grinding or mechanical finishing is required before Alumilite treatment. This alloy is subject to mild structural streakage.
	Alcoa No. 1 and No. 3⑤ Porcelain Enameling Sheet—alloys developed for application of porcelain enamel		
EXTRUSIONS	6063	6062	6063—Appearance match with No. 32 Alumilite sheet, 6063 tube and pipe, and F214 castings after Alumilite treatment. Alcoa Anoclad Extrusion Type 10—Appearance match with Alcoa Anoclad Sheet Type 10 in Alcoa Architectural Colors, 10 series.① Alcoa Anoclad Extrusion Type 20—Appearance match with Alcoa Anoclad Sheet Type 20 in Alcoa Architectural Colors, 20 series.② Alcoa Anoclad Extrusion Type 30—Appearance match with Alcoa Anoclad Sheet Type 30 in Alcoa Architectural Gray 2030. Alcoa Anoclad Extrusion Type 40—Appearance match with Alcoa Anoclad Sheet Type 40 in Alcoa Architectural Colors, 40 series.③
	Alcoa No. 1 Porcelain Enameling Extruded Shapes—alloy developed for application of porcelain enamel		
TUBE AND PIPE	3003	6063 6061	6063—Appearance match with No. 32 Alumilite sheet, 6063 extrusions, F214 castings after Alumilite finish.
SAND CASTINGS	43	356	43—Gray, after Alumilite treatment. F214—Appearance match with No. 32 Alumilite sheet, 6063 extrusions, tube and pipe after Alumilite finish.
STRUCTURALS	6061 Rolled & Extruded		
FASTENERS	2024 screws 6061 nails 1100, 6053, 6061 rivets: in increasing shear strength		2024—Available with Alumilite finish for extra corrosion resistance. Also available in colors corresponding to Alcoa Architectural Color Finishes.

Most items available in range of strengths from fully annealed to fully hard or fully heat treated. Wide choice of other Alcoa alloys available.

① 10 Series—Alcoa Arch. Gray 2010, Gold 4010.

② 20 Series—Alcoa Arch. Gray 2020, Blue 3120, Brown 4120, Green 6020.

③ 40 Series—Alcoa Arch. Gray 2140, Blue 3140, Brown 4040, Green 6040.

④ These alloys should not be selected if grinding, belt sanding or other types of mechanical finishing are specified.

⑤ No. 3 should be used only if it meets structural requirements after firing.

SUGGESTED ARCHITECTURAL SPECIFICATIONS

Text at left is for architect's information and is not part of the specification.

To facilitate bidding and accurate quoting, it is recommended that the aluminum components, including anchorage and accessories, be treated under a separate specification division and not combined with miscellaneous metalwork or any other division of work.

short form specification

Contractor shall furnish and install Alcoa Aluminum (insert product desired) as indicated on the drawings. Workmanship and installation shall be in accordance with recommended standards of Aluminum Company of America.

specification information

related to the specification at right

long form specification

1. GENERAL CONDITIONS:

(a) "The General Conditions of the Contract for the Construction of Buildings," Standard Form of the American Institute of Architects, latest edition, and "Supplementary General Conditions" are the first item of the specification.

(b) The Supplementary General Condition included here is suggested for use with Alcoa Long Form Specification.

(a) "The General Conditions of the Contract for the Construction of Buildings," Standard Form of American Institute of Architects, latest edition, Articles 1 to 44 inclusive, are part of this contract.

(b) These Specifications are "streamlined" and include incomplete sentences. Omitted words or phrases such as, "The Contractor shall," "as noted on the Drawings," "according to the plans," "a," "an," "the," and "all" shall be supplied by inference in the same manner as they are when a "note" occurs on Drawings.

2. WORK INCLUDED:

This should list an outline of all work necessary to make a proper installation of the aluminum product being used. The list should include the following:

- Identification of aluminum product being used by name.
- Miscellaneous parts and fasteners being used for installation of aluminum product.
- Necessary calking.
- Priming and back painting.
- Shop drawings.

- *Furnish labor, materials and equipment to complete aluminum* (insert product name) *work indicated on drawings or specified herein.*
- *Work shall include all parts and accessories for all variations of fabricating techniques required for a complete installation.*
- *Calking.*
- *Priming and back painting.*
- *Shop drawings.*

3. MATERIALS:

Explicit identification of the aluminum product is essential. To specify an aluminum product required for particular job conditions, it is necessary to be familiar with the three identifying properties of Alcoa Aluminum products:

1. Alcoa product nomenclature —
   - Product by trade name — Alcoa Industrial Roofing.
   - Product by name and type; i.e., Alcoa #10 Pattern Sheet.
   - Product by name, type and section number; i.e., Alcoa Gravel Stop Type E, Section No. 68755.
2. Alloy and finish characteristics — see Table B — GUIDE FOR SELECTION OF ALLOYS, (page 4) which covers general applications.
3. Physical Properties —
   - Dimensions — tube: outside dimension and wall thickness.
   - Dimensions and weight — structural shapes: by dimensions and weight per lineal foot.
   - Gage — sheet and plate: by thickness in inches.
   - Section elements—structural shapes: by strength requirements.

The specifications for materials are too variable to allow wording of this section. With the aid of specification data in Alcoa product literature or the assistance of your Aluminum Company of America representative you may devise specifications as required.

Materials for products to be finished in an Alcoa Architectural Color must be specified as follows:

The (insert product name) *shall be Alcoa Anoclad Sheet or Extrusion* (select which) *Type 10, 20, 30 or 40* (select which — see Alcoa insert under "Curtain Walls," SWEET'S ARCHITECTURAL FILE, 1960).

4. FINISHES:

The specifications for most aluminum finishes are too variable and must recognize too many individual factors to permit wording of a standard specification here. However, much of the basic information needed to write a finish specification will be found on page 2. When additional assistance is required, consult your Alcoa representative.

5. WORKMANSHIP, INSTALLATION:

It is essential to cover and allow for proper workmanship and installation. Particular conditions and those of magnitude must be put forth as a method reminder in a legal form as a binding contract. Minimum requirements are that the work shall be made and erected square, plumb, straight and true, designed for adjustment to field variations, accurately fitted with tight joints and intersections, adequately reinforced and anchored in place.

All aluminum work shall be performed in a shop where grade of metalwork is of recognized quality acceptable to the architects. All items shall be installed plumb, straight, square, level and in proper elevation, plane, location and alignment with other work. All work shall be designed for adjustment to field variations, fitted with proper joints and intersections, adequately anchored in place. All workmanship and finishes shall be first class in every particular, strictly in accordance with best practice. All work shall be complete in every detail. Finished work shall be approved by the architect before the job will be accepted.

6. DISSIMILAR MATERIALS:

Contact between aluminum and dissimilar materials in the presence of moisture can cause corrosion of the aluminum. Proper protective measures are both numerous and simple. See the specification at right for detailed information.

(*a*) *ALUMINUM TO DISSIMILAR METALS*
Where aluminum surfaces come in contact with metals other than stainless steel, zinc, white bronze of small area or other metals compatible with aluminum, keep aluminum surfaces from direct contact with such parts by (1) painting the dissimilar metal with a prime coat of zinc-chromate primer or other suitable primer, followed by one or two coats of aluminum metal-and-masonry paint or other suitable protective coating, excluding those containing lead pigmentation, (2) painting the dissimilar metal with a coating of heavy-bodied bituminous paint, (3) a good quality calking placed between aluminum and dissimilar metal, or (4) a nonabsorptive tape or gasket. Steel anchors and connecting members may be hot-dip galvanized or zinc plated after fabrication.

(*b*) *DRAINAGE FROM DISSIMILAR METALS*
Paint dissimilar metals if used in locations where drainage from them passes over aluminum.

(*c*) *ALUMINUM TO MASONRY*
Paint aluminum surfaces in contact with lime mortar, concrete, plaster or other masonry materials with alkaline-resistant coatings, such as heavy-bodied bituminous paint or water-white methacrylate lacquer.

(*d*) *1. ALUMINUM TO WOOD*
Aluminum in contact with wood or other absorptive materials which may become repeatedly wet shall be painted with two coats of aluminum metal-and-masonry paint or a coat of heavy-bodied bituminous paint. Alternate: paint the wood or other absorptive material with two coats of aluminum house paint and seal joints with a good quality calking compound.

2. ALUMINUM TO TREATED WOOD
Where aluminum is in contact with treated wood, wood shall be treated with pentachlorophenol, 5% minimum concentration, or Wolman salts or creosote or zinc naphthenate (select one). *Follow the protective measures outlined in paragraph (d)1.*

7. EXPANSION, CONTRACTION:

Aluminum alloys used for architectural work have a coefficient of thermal expansion of .000013 per °F per unit of length. This amounts to a change of about 9/32″ per 10′ of length per 100°F change in temperature.

Aluminum work shall be designed and anchored so that the work will not be distorted nor the fasteners overstressed from the expansion and contraction of the metal.

8. CONSTRUCTION PROTECTION:

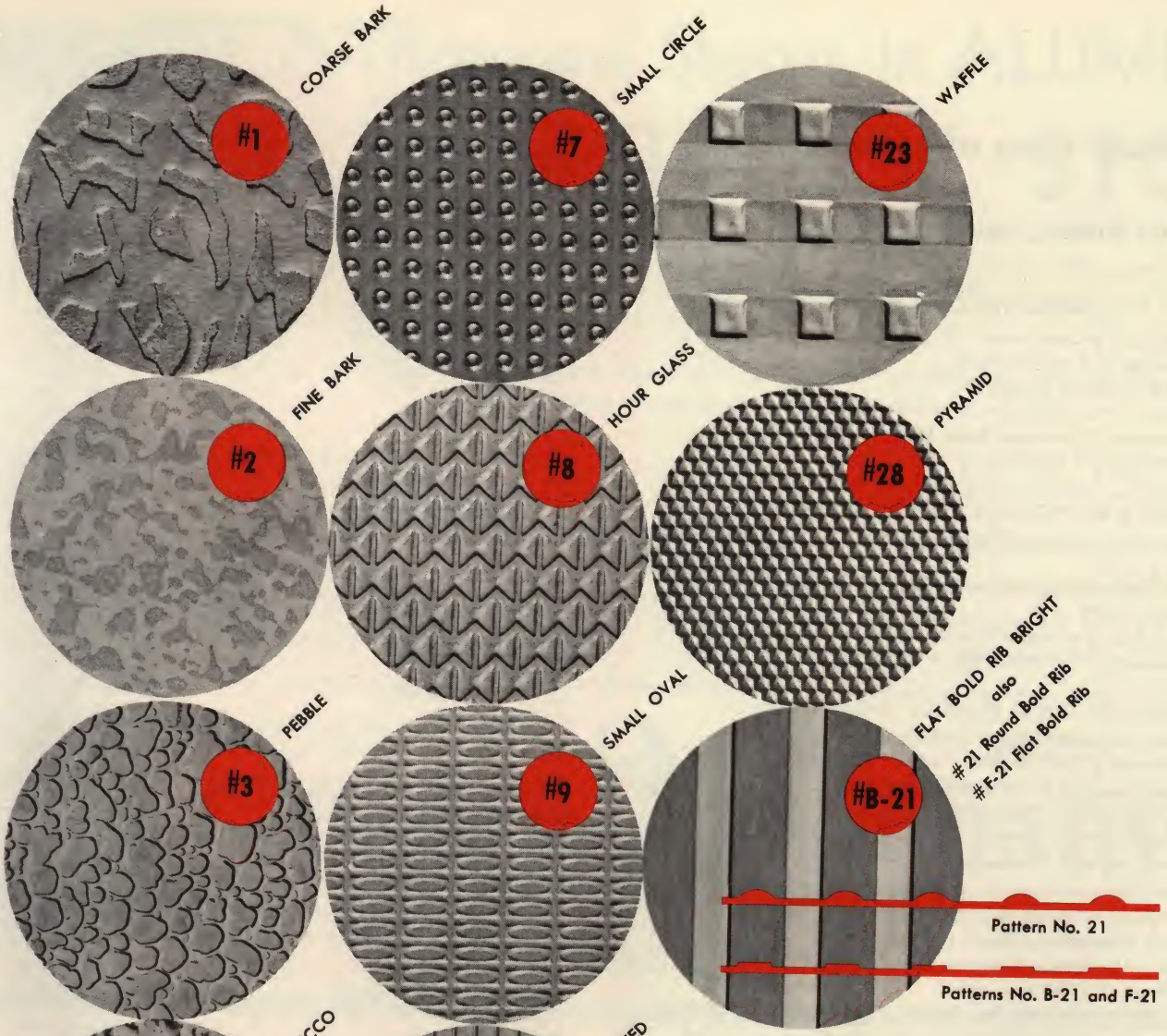
Before shipment from the factory, aluminum surfaces requiring protection should be given a coating which will protect the metal against stain, discoloration, abrasion and other construction abuses.

Aluminum surfaces requiring protection against lime mortar stains, discoloration, surface abrasion and other construction abuses shall be suitably protected in accordance with Alcoa publication, CARE DURING CONSTRUCTION, *latest edition.*

9. FINAL CLEANING:

After installation is completed, all aluminum work should be cleaned. This should be performed by general contractor, aluminum contractor or cleaning contractor with a recommended cleaner. Damaged parts should be replaced and installation left complete and in finished condition.

Upon completion, general contractor or aluminum contractor or cleaning contractor (select one) *shall clean aluminum work in accordance with Alcoa publication,* CARE DURING CONSTRUCTION, *latest edition. Leave aluminum work in satisfactory condition.*



Alcoa Aluminum Patterned Sheet (flat)

ALLOYS: No. 32 Alumilite Sheet; Anoclad Sheet Types 10, 20, 30, 40; 1100, 3003, 5005

PATTERN NO.	THICKNESS INCH	WIDTHS — INCHES Tempers -H114	-H134	-H154	LENGTHS INCHES
1, 2	.125-.061	60	60	60	180
	.060-.038	48	48	48	180
	.037-.030	36	36	36	180
	.029-.025	36	..	..	180
3	.125-.061	54	54	54	180
	.060-.038	54	48	48	180
	.037-.030	48	36	36	180
E-5 (embossed 2 sides)	.064-.038	57	48	48	180
	.037-.024	48	48	48	180
	.023-.019	36	36	36	180
	.018-.016	36	..	36	144
6, 7, 8	.064-.030	24	20	20	180
9	.064-.024	24	20	20	180
10	.125-.061	84	60	60	180
	.060-.038	60	48	60	180
	.037-.030	48	48	48	180
11	.125-.061	84	60	60	84
	.060-.038	60	48	60	72
21, B-21, F-21	.125-.100	48	..	..	180
	.099-.072	48	..	..	180
	.071-.051	36	..	..	180
23	.125-.100	48	..	..	72
	.099-.072	48	..	..	72
	.071-.051	36	..	..	72
28	.064-.038	18	18	18	180
	.037-.030	18	..	..	180

Many patterns are available in other alloys and tempers.

USEFUL ALCOA LITERATURE

for the architect, engineer and designer

Order No.		AIA File No.
	ALUMINUM TECHNICAL DATA	
70-10507	Care During Construction	15-J
70-10508	Cleaning and Maintenance	13-E
03-10122	Alcoa Structural Handbook	
02-10051	Alcoa Aluminum Handbook	
31-20617	Resistance of Aluminum-Base Alloys to 20-year Atmospheric Exposure	
	CURTAIN WALL PRODUCTS AND DESIGN DATA	
70-11295	Alcoa Sol-Dec Screen (Series 300-5)	35-P-2
70-11265	This is Alply Architectural Achievements (folders, detail sheets) Series 100	17-A
70-11147	Wall System of Alcoa Aluminum (Sweet's 1960 Arch. File)	17-A
	ROOFING AND SIDING PRODUCT INFORMATION	
71-10285	Alcoa Aluminum Industrial Building Products (Sweet's 1960 I.C. File)	12-C
71-10528	Alcoa Aluminum Roofing and Siding Products (Sweet's 1960 Arch. File)	12-C
71-10625	Sandwich Walls of Alcoa Aluminum	
69-11171	Introducing Alcoa Alumalure	12-C
	MISCELLANEOUS PRODUCT INFORMATION	
70-10448	Alcoa Architectural Stocks (1958)	15-J
70-10262	Alcoa Aluminum in Architecture (Sweet's 1960 Arch. File)	15-J
70-10427	Aluminum in Builders' Hardware	27-D
70-11261	Alcoa Pipe Railing Systems (Series 300-4)	14-D-4
71-10516	Chain Link Fence of Alcoa Aluminum	14-K
72-10300	Highway Railings of Alcoa Aluminum	
71-10529	Alcoa Aluminum Products for Industrial Building Construction (Sweet's 1960 I.C. File)	14-A
70-10306	Aluminum on the Skyline (Alcoa Building)	
31-10596	Alcoa Abrasive Tread Plate	
71-10679	New Low-Cost Aluminum Stair Treads — Grating Type	
17-10661	Alcoa Aluminum Bus Conductor Handbook	
17-10283	Alcoa Aluminum Electrical Rigid Conduit	
75-11152	Alcoa Report to the Building Industry: Facts About Aluminum in Electrical Systems	
44-10456	Finishes for Alcoa Aluminum	

of special interest to the subcontractor and fabricator

	PROCESSING	
01-11108	Alcoa Aluminum Alloys and Mill Products	
48-10130	Forming Alcoa Aluminum	
52-10031	Machining Alcoa Aluminum	
50-10003	Riveting Alcoa Aluminum	
30-10228	Painting With Aluminum	
50-10416	Brazing Alcoa Aluminum	
19-10244	Alcoa Aluminum Fasteners and Screw Machine Products	

ALCOA SALES OFFICES

ABERDEEN, S. D. . . . 304 Western Union Building
AKRON 8, OHIO . . . 506 Akron Savings & Loan Building
ALBANY 7, N. Y. . . . 90 State Street
ALLENTOWN, PA. . . . 1132 Hamilton Street
ATLANTA 9, GA. . . . Alcoa Building, 1615 Peachtree Street
BALTIMORE 2, MD. . . . 1007 Commercial Credit Building
BIRMINGHAM 1, ALA. . . . No. 10 Office Park, Mountain Brook, P. O. Box 2041
BOISE, IDAHO . . . 1220 Vista Avenue
BOSTON 16, MASS. . . . 20 Providence Street, Park Square
BRIDGEPORT 1, CONN. . . . Atlantic Street
BUFFALO 5, N. Y. . . . P. O. Box 3024
CHARLOTTE 2, N. C. . . . 1000 Wachovia Bank Building
CHATTANOOGA 2, TENN. . . . 1205 Volunteer Building
CHICAGO 11, ILL. . . . 520 North Michigan Avenue
CINCINNATI 6, OHIO . . . Alcoa Building, 2331 Victory Parkway
CLEVELAND 13, OHIO . . . 1450 Terminal Tower
COLUMBUS 15, OHIO . . . 230 Bryson Building
DALLAS 2, TEXAS . . . 301 Thomas Building
DAVENPORT, IOWA . . . 601 Brady Street
DAYTON 5, OHIO . . . 207 Northtown Arcade
DENVER 6, COLO. . . . 105 Fillmore Street
DES MOINES 12, IOWA . . . 3620 Ingersoll Avenue
DETROIT 2, MICH. . . . 610 New Center Building
EVANSVILLE (NEWBURGH), IND. . . . P. O. Box 365
FLINT 2, MICH. . . . 510 Mott Foundation Building
FORT WAYNE, IND. . . . 2924 South Calhoun Street Building
GARDEN CITY, N. Y. . . . 1001 Franklin Avenue
GRAND RAPIDS 2, MICH. . . . 812 Michigan National Bank Building
HARTFORD 3, CONN. . . . 410 Asylum Street
HOUSTON 2, TEXAS . . . 1310 First City National Bank Building
INDIANAPOLIS 7, IND. . . . 2939 North Meridian Street
JACKSON, MICH. . . . 1405 National Bank Building
KANSAS CITY 5, MO. . . . 2300 Power & Light Building
LAFAYETTE, IND. . . . P. O. Box 500
LIMA, OHIO . . . 901 National Bank Building
LITTLE ROCK, ARK. . . . 116 Glen Drive
LOS ANGELES 17, CALIF. . . . 1145 Wilshire Boulevard
LOUISVILLE 2, KY. . . . 1152 Starks Building
MEMPHIS 17, TENN. . . . 4515 Poplar Avenue
MIAMI (HIALEAH), FLA. . . . 490 Hialeah Drive Building
MILWAUKEE 3, WIS. . . . 2040 West Wisconsin Avenue
MINNEAPOLIS 2, MINN. . . . 1060 Northwestern Bank Building
NASHVILLE 12, TENN. . . . 235 Wilson-Bates Building
NEWARK 2, N. J. . . . 744 Broad Street
NEW ORLEANS 12, LA. . . . 1225 Whitney Buildir
NEW YORK 17, N. Y. . . . 230 Park Avenu
OAKLAND 8, CALIF. . . . 1001 46th Street
OKLAHOMA CITY 5, OKLA. . . . P. O. Box 3251
OMAHA 2, NEBR. . . . 746 Omaha National Bank Building
PEORIA, ILL. . . . 614 Commercial Bank Building
PHILADELPHIA 9, PA. . . . 123 South Broad Street
PHOENIX, ARIZ. . . . 625G First National Bank Building
PITTSBURGH 19, PA. . . . 1501 Alcoa Building
PORTLAND 4, ORE. . . . 1115 U. S. National Bank Building
PROVIDENCE 3, R. I. . . . 2503 Industrial Bank Building
RICHMOND 19, VA. . . . 712 Southern States Building
ROCHESTER 18, N. Y. . . . Erdle Building
ST. LOUIS 8, MO. . . . 10th Floor, Continental Building
SAN DIEGO 3, CALIF. . . . 2962 Fifth Avenue
SAN FRANCISCO 4, CALIF. . . . 2509 Equitable Life Building
SEATTLE 1, WASH. . . . 1411 Fourth Avenue Building
SOUTH BEND 1, IND. . . . 805 J.M.S. Building
SPOKANE 1, WASH. . . . 610 Fidelity Building
SPRINGFIELD 3, MASS. . . . 508 Tarbell-Watters Building
SYRACUSE 3, N. Y. . . . 731 James Street
TAMPA 9, FLA. . . . 4302 Henderson Boulevard
TOLEDO 2, OHIO . . . 350 W. Woodruff Avenue
WASHINGTON 6, D. C. . . . 1200 Ring Building
WICHITA 2, KAN. . . . 1010 Central Building
WILMINGTON 1, DEL. . . . 825 Bank of Delaware Building
WORCESTER 8, MASS. . . . 22 Pleasant Street
YORK, PA. . . . 205 Manufacturers Building
YOUNGSTOWN 3, OHIO . . . 537 Ohio Edison Building

ALCOA INTERNATIONAL, INC. . . . 230 Park Avenue, New York 17, N. Y.

ALCOA ALUMINUM
ALUMINUM COMPANY OF AMERICA

1211 ALCOA BUILDING • PITTSBURGH 19, PA.

FORM 70-10262 LITHO IN U.S.A.

Braun Architectural Shapes in ALUMINUM

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A.I.A. File No. 15-J

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215 R1	Caustic Etch and Anodize (1 Hour)	204 A1 R1	Buffed Finish, Caustic Etch and Anodize (½ Hour)
204 C1 R1	Polished Satin Finish, Caustic Etch and Anodize (½ Hour)	215 A1 R1	Buffed Finish, Caustic Etch and Anodize (1 Hour)

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ENTERPRISE 6268

ALUMINUM BARS and SHAPES

Weights and Measurements Approximate

RECTANGULAR BARS

6063-T5 Alloy and Temper
16 Ft. Length

Size	Wt. Per Foot
⅛" x ½"	.075 lbs.
⅛" x ⅝"	.094 lbs.
⅛" x ¾"	.112 lbs.
⅛" x 1"	.150 lbs.
⅛" x 1¼"	.182 lbs.
⅛" x 1½"	.224 lbs.
⅛" x 1¾"	.263 lbs.
⅛" x 2"	.300 lbs.
⅛" x 2½"	.375 lbs.
⅛" x 3"	.450 lbs.
⅛" x 4"	.600 lbs.
3/16" x ½"	.113 lbs.
3/16" x ⅝"	.141 lbs.
3/16" x ¾"	.169 lbs.
3/16" x 1"	.226 lbs.
3/16" x 1¼"	.281 lbs.
3/16" x 1½"	.337 lbs.
3/16" x 1¾"	.394 lbs.
3/16" x 2"	.450 lbs.
3/16" x 2½"	.563 lbs.
3/16" x 3"	.677 lbs.
¼" x ½"	.147 lbs.
¼" x ⅝"	.187 lbs.
¼" x ¾"	.225 lbs.
¼" x 1"	.300 lbs.
¼" x 1¼"	.375 lbs.
¼" x 1½"	.450 lbs.
¼" x 1¾"	.525 lbs.
¼" x 2"	.582 lbs.
¼" x 2½"	.750 lbs.
¼" x 3"	.900 lbs.
¼" x 4"	1.164 lbs.
¼" x 5"	1.500 lbs.
¼" x 6"	1.800 lbs.
5/16" x 2"	.749 lbs.
3/8" x ½"	.224 lbs.
3/8" x ⅝"	.278 lbs.
3/8" x ¾"	.338 lbs.
3/8" x 1"	.450 lbs.
3/8" x 1¼"	.561 lbs.
3/8" x 1½"	.675 lbs.
3/8" x 1¾"	.787 lbs.
3/8" x 2"	.873 lbs.
3/8" x 2½"	1.126 lbs.
3/8" x 3"	1.350 lbs.
3/8" x 3½"	1.576 lbs.
3/8" x 4"	1.800 lbs.
3/8" x 5"	2.252 lbs.
3/8" x 6"	2.700 lbs.
½" x ¾"	.449 lbs.
½" x 1"	.600 lbs.
½" x 1¼"	.750 lbs.
½" x 1½"	.882 lbs.
½" x 1¾"	1.050 lbs.
½" x 2"	1.200 lbs.
½" x 2½"	1.500 lbs.
½" x 3"	1.800 lbs.
½" x 4"	2.398 lbs.
½" x 5"	3.000 lbs.
½" x 6"	3.600 lbs.
⅝" x 1"	.749 lbs.
⅝" x 1¼"	936 lbs.
⅝" x 1½"	1.124 lbs.
⅝" x 2"	1.498 lbs.
⅝" x 3"	2.246 lbs.
¾" x 1"	.899 lbs.
¾" x 1¼"	1.126 lbs.
¾" x 1½"	1.320 lbs.
¾" x 1¾"	1.572 lbs.
¾" x 2"	1.764 lbs.
¾" x 2½"	2.246 lbs.
¾" x 3"	2.700 lbs.
¾" x 4"	3.594 lbs.
¾" x 5"	4.500 lbs.
1" x 1½"	1.800 lbs.
1" x 2"	2.400 lbs.
1" x 3"	3.600 lbs.
2" x 4"	9.584 lbs.

SQUARE BARS

6063-T5 Alloy and Temper
16 Ft. Length

Size	Wt. Per Foot
¼" x ¼"	.073 lbs.
5/16" x 5/16"	.116 lbs.
⅜" x ⅜"	.189 lbs.
½" x ½"	.294 lbs.
⅝" x ⅝"	.468 lbs.
¾" x ¾"	.673 lbs.
1" x 1"	1.200 lbs.
1¼" x 1¼"	1.875 lbs.
1½" x 1½"	2.700 lbs.
2" x 2"	4.800 lbs.

ROUND RODS

6063-T5 Alloy & Temper
16 Ft. Length

Diam.	Wt. Per Foot
⅛"	.235 lbs.
5/16"	.368 lbs.
¾"	.529 lbs.
1"	.942 lbs.
1¼"	1.472 lbs.
1½"	2.120 lbs.
2"	3.770 lbs.

ANGLES EQUAL

6063-T5 Alloy & Temper
16 Ft. Length

Number	Size A	Size B	Size T	Weight Per Foot
4638	½"	½"	1/16"	.070 lbs.
4627	⅛"	½"	⅛"	.131 lbs.
4628	⅝"	⅝"	⅛"	.168 lbs.
4963	¾"	¾"	1/16"	.108 lbs.
4678	¾"	¾"	3/32"	.158 lbs.
4629	¾"	¾"	⅛"	.206 lbs.
4954	1"	1"	1/16"	.145 lbs.
4630	1"	1"	⅛"	.281 lbs.
4615	1"	1"	3/16"	.408 lbs.
4631	1¼"	1¼"	⅛"	.355 lbs.
4603	1¼"	1¼"	3/16"	.519 lbs.
4632	1½"	1½"	⅛"	.431 lbs.
4623	1½"	1½"	3/16"	.633 lbs.
4684	1¾"	1¾"	⅛"	.506 lbs.
4620	2"	2"	⅛"	.581 lbs.
4633	2"	2"	3/16"	.857 lbs.
4604	2"	2"	¼"	1.124 lbs.
4698	3"	3"	3/16"	1.308 lbs.

HEXAGON RODS

6063-T5 Alloy & Temper
16 Ft. Length

Dim. "A"	Weight Per Foot
½"	.259 lbs.
¾"	.586 lbs.
1"	1.039 lbs.
1½"	2.237 lbs.

ANGLES UNEQUAL

6063-T5 Alloy and Temper
16 Ft. Length

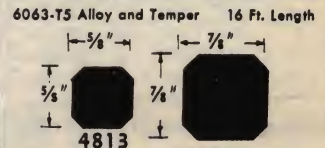
Number	Size A	Size B	Size T	Weight Per Foot
4634	¾"	⅜"	3/32"	.116 lbs.
4955	1"	½"	3/32"	.158 lbs.
4635	1"	½"	⅛"	.206 lbs.
4957	1"	¾"	⅛"	.244 lbs.
4636	1¼"	½"	⅛"	.244 lbs.
4756	1½"	½"	⅛"	.281 lbs.
4637	1½"	¾"	⅛"	.319 lbs.
4624	1½"	1"	⅛"	.356 lbs.
87070	1¾"	⅞"	**	.209 lbs.
4763	2"	½"	⅛"	.355 lbs.
4764	2"	¾"	⅛"	.394 lbs.
4639	2"	1"	⅛"	.431 lbs.
4765	2½"	1"	⅛"	.506 lbs.
4956	3"	1"	⅛"	.581 lbs.
4772	3"	2"	⅛"	.716 lbs.
4663	3½"	1¼"	⅛"	.694 lbs.
4787	4"	2"	⅛"	.863 lbs.
4795	5"	3"	⅛"	1.157 lbs.
* 4685	5¼"	2¼"	⅛"	1.106 lbs.

* 6063-T6 Alloy and Temper

**Long leg .062"
short leg .081"

ORNAMENTAL BARS

6063-T5 Alloy and Temper 16 Ft. Length



4813 .431 lbs. 4814 .860 lbs.

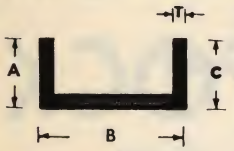
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ALUMINUM SHAPES

Weights and Measurements Approximate

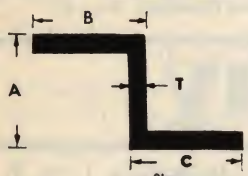
ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES. SEE PAGE 1 FOR FINISHES AND SPECIFICATIONS

CHANNELS
UNEQUAL Sharp Corners
6063-T5 Alloy and Temper



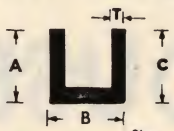
Number	Size A	Size B	Size C	Size T	Weight Per Foot	Length
4971	3/8"	1/2"	3/8"	1/8"	.150 lbs.	16'
4611	3/8"	3/4"	3/8"	1/8"	.187 lbs.	16'
4600	1/2"	1"	1/2"	1/8"	.263 lbs.	20'
4609	1/2"	1 1/4"	1/2"	1/8"	.300 lbs.	20'
87071	3/4"	1 1/4"	3/4"	1/8"	.374 lbs.	20'
4959	1/2"	1 17/16"	1/2"	3/32"	.251 lbs.	20'
4612	1/2"	1 1/2"	1/2"	1/8"	.337 lbs.	20'
4963	3/4"	1 1/2"	3/4"	1/8"	.413 lbs.	16'
4616	1/2"	1 3/4"	1/2"	1/8"	.374 lbs.	16'
4986	3/4"	1 3/4"	3/4"	1/8"	.450 lbs.	16'
4689	1"	1 3/4"	1"	1/8"	.524 lbs.	16'
4617	1/2"	2"	1/2"	1/8"	.413 lbs.	16'
4965	1"	2"	1"	1/8"	.564 lbs.	20'
22266	.550"	2.100"	.550"	.100	.360 lbs.	20'
4958	9/16"	2 3/32"	9/16"	3/32"	.360 lbs.	20'
4668	7/8"	2 1/4"	7/8"	1/8"	.563 lbs.	16'
4967	3/4"	2 1/2"	3/4"	1/8"	.564 lbs.	16'
4693	1 1/2"	2 1/2"	1 1/2"	1/8"	.787 lbs.	22'
4610	1/2"	3"	1/2"	1/8"	.563 lbs.	16'
4968	1"	3"	1"	1/8"	.713 lbs.	16'
4697	2"	3"	2"	1/8"	1.013 lbs.	16'
4969	1 1/2"	4"	1 1/2"	1/8"	1.013 lbs.	16'
4696	2"	4 1/2"	2"	1/8"	1.237 lbs.	16'
4970	2"	5"	2"	3/16"	1.940 lbs.	16'

ZEE BARS
6063-T5 Alloy and Temper
16 Ft. Length



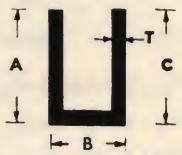
Number	Size A	Size B	Size C	Size T	Weight Per Foot
4618	3/4"	3/4"	3/4"	1/8"	.300 lbs.
23787	7/8"	3/4"	3/4"	1/8"	.319 lbs.
4622	1"	5/8"	7/8"	1/8"	.337 lbs.
4619	1"	1 1/8"	1 1/8"	1/8"	.450 lbs.
4664	1 3/16"	1 1/16"	1 1/2"	3/16"	.676 lbs.

CHANNELS
EQUAL Sharp Corners
6063-T5 Alloy and Temper
16 Ft. Length



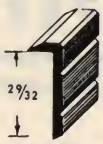
Number	Size A	Size B	Size C	Size T	Weight Per Foot
3619	3/8"	3/8"	3/8"	7/64"	.120 lbs.
4614	1/2"	1/2"	1/2"	3/32"	.148 lbs.
4688	5/8"	5/8"	5/8"	1/8"	.244 lbs.
4962	3/4"	3/4"	3/4"	1/8"	.300 lbs.
4613	1"	1"	1"	1/8"	.413 lbs.
4601	1 1/4"	1 1/4"	1 1/4"	1/8"	.526 lbs.
4607	1 1/2"	1 1/2"	1 1/2"	1/8"	.637 lbs.
4966	2"	2"	2"	1/8"	.863 lbs.
4608	2"	2"	2"	3/16"	1.262 lbs.
4718	2 1/2"	2 1/2"	2 1/2"	1/8"	1.065 lbs.
4719	3"	3"	3"	1/8"	1.286 lbs.

CHANNELS
UNEQUAL Sharp Corners
SASH TYPE
6063-T5 Alloy and Temper
16 Ft. Length

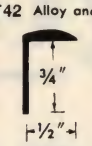


Number	Size A	Size B	Size C	Size T	Weight Per Foot
4606	3/4"	1/2"	3/4"	3/32"	.204 lbs.
4686	3/4"	1/2"	3/4"	1/8"	.263 lbs.

COUNTER EDGINGS
6063-T42 Alloy and Temper



4648 .107 lbs. 12 Ft. Length

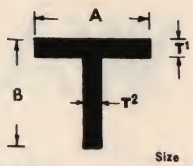


4653 .093 lbs. 16 Ft. Length



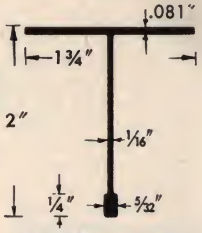
4654 .203 lbs. 16 Ft. Length

TEE BARS
6063-T5 Alloy and Temper
16 Ft. Length



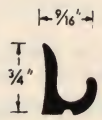
Number	Size A	Size B	Size T1	Size T2	Weight Per Foot
18307	3/4"	3/4"	1/8"	1/8"	.206 lbs.
4625	3/4"	1"	1/8"	1/8"	.244 lbs.
4716	3/4"	1 1/4"	1/8"	1/8"	.280 lbs.
4626	3/4"	1 3/8"	5/32"	5/32"	.370 lbs.
8983	7/8"	1 1/4"	1/8"	1/8"	.300 lbs.
7030	7/8"	1 1/4"	5/32"	1/8"	.328 lbs.
1257	1"	1/2"	1/8"	3/8"	.319 lbs.
18308	1"	3/4"	1/8"	1/8"	.244 lbs.
25055	1"	1"	1/8"	1/8"	.281 lbs.
7895	1 1/4"	7/8"	1/8"	1/8"	.300 lbs.
4699	1 1/2"	1 1/2"	1/8"	1/8"	.431 lbs.
4978	1 1/2"	1 3/4"	3/16"	3/16"	.689 lbs.
18906	2"	3/4"	1/8"	1/8"	.394 lbs.
7258	2"	2"	3/16"	3/16"	.860 lbs.

TEE BARS
For acoustical ceilings
6063-T5 Alloy & Temper
16 Ft. Length

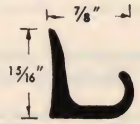


87069 .341 lbs.

DRIP MOULDINGS
16 Ft. Length



627 .184 lbs.



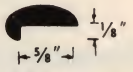
668 .307 lbs.

6063-T42 Alloy and Temper

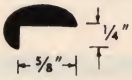


70421 .194 lbs.
6063-T5 Alloy and Temper

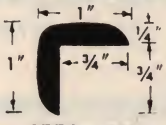
ORNAMENTAL ANGLES
6063-T42 Alloy and Temper
16 Ft. Length



4656 .133 lbs.



4657 .157 lbs.



4770 .433 lbs.

ALUMINUM PIPE and TUBING

Weights and Measurements Approximate

SEE PAGE 5 FOR FLUSH TYPE FITTINGS (90°, 40°, 35°)
SEE PAGE 6 FOR LARGEST SELECTION OF BRACKETS

I.P.S. HANDRAIL PIPE
6063-T832 Alloy and Temper

	Size I.P.S.	Outside Diameter	Inside Diameter	Wall Thickness	Weight Per Foot
20 Ft. Length	1 1/4"	1.660"	1.380"	.140"	.785 lbs
Plain Ends	1 1/2"	1.900"	1.610"	.145"	.939 lbs

ALUMINUM I.P.S. STANDARD PIPE
Plain Ends
6063-T6 Alloy and Temper
20 Ft. Length

Size I. P. S.	Outside Diameter	Inside Diameter	Wall Thickness	Weight Per Foot
1/2"	.840"	.622"	.109"	.294 lbs.
3/4"	1.050"	.824"	.113"	.390 lbs.
1"	1.315"	1.049"	.133"	.580 lbs.
1 1/4"	1.660"	1.380"	.140"	.785 lbs.
1 1/2"	1.900"	1.610"	.145"	.939 lbs.
2"	2.375"	2.067"	.154"	1.262 lbs.
3"	3.500"	3.068"	.216"	2.617 lbs.

ROUND SEAMLESS ALUMINUM TUBING
6061-T6 Alloy and Temper
12 Ft. Lgth

Size O.D.	Wall Thickness	Weight Per Foot
3/8"	.049"	.059 lbs.
1/2"	.065"	.104 lbs.
5/8"	.065"	.134 lbs.
3/4"	.065"	.164 lbs.
1"	.065"	.224 lbs.
1 1/4"	.065"	.284 lbs.
1 1/2"	.065"	.344 lbs.
2"	.065"	.465 lbs.

RECTANGULAR ALUMINUM TUBING
Square Cornered
EXTRUDED AND DRAWN
21 Ft. –1 In. Length

Outside Dimensions	Wall Thickness	Weight Per Foot		ALLOY & TEMPER
* 1/2" x 1"	x .078"	.246 lbs.	As Drawn	3003-F
1/2" x 1"	x .125"	.328 lbs.	As Extruded	6063-T5
* 3/4" x 1 1/2"	x .078"	.384 lbs.	As Drawn	3003-F
3/4" x 1 1/2"	x .125"	.588 lbs.	As Extruded	6063-T5
*1" x 1 1/2"	x .078"	.431 lbs.	As Drawn	3003-F
1" x 1 1/2"	x .125"	.661 lbs.	As Extruded	6063-T5
*1" x 2"	x .083"	.553 lbs.	As Drawn	3003-F
1" x 2"	x .125"	.851 lbs.	As Extruded	6063-T5
1 1/4" x 2 1/2"	x .125"	1.023 lbs.	As Extruded	6063-T5
1 1/2" x 2"	x .125"	.967 lbs.	As Extruded	6063-T5
1 1/2" x 2 1/2"	x .125"	1.100 lbs.	As Extruded	6063-T5
1 3/4" x 2 1/4"	x .125"	1.126 lbs.	As Extruded	6063-T5
1 3/4" x 3"	x .125"	1.350 lbs.	As Extruded	6063-T5
* 1 3/4" x 3 1/4"	x .102"	1.150 lbs.	As Drawn	3003-F
1 3/4" x 3 1/2"	x .125"	1.470 lbs.	As Extruded	6063-T5
1 3/4" x 4"	x .125"	1.650 lbs.	As Extruded	6063-T5
1 3/4" x 4 1/2"	x .125"	1.765 lbs.	As Extruded	6063-T5
1 3/4" x 5"	x .125"	1.950 lbs.	As Extruded	6063-T5
2" x 3"	x .125"	1.426 lbs.	As Extruded	6063-T5
2" x 4"	x .125"	1.706 lbs.	As Extruded	6063-T5
2" x 5"	x .125"	1.985 lbs.	As Extruded	6063-T5
3" x 5"	x .125"	2.294 lbs.	As Extruded	6063-T5

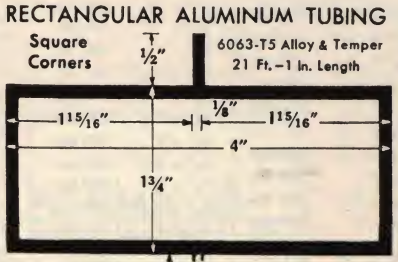
* Items discontinued when sold out

SQUARE ALUMINUM TUBING
EXTRUDED Square Cornered
6063-T5 Alloy and Temper • 21 Ft.–1 In. Length

Outside Dimensions	Wall Thickness	Weight Per Foot
1/2" x 1/2"	x .062"	.130 lbs.
*5/8" x 5/8"	x .062"	.167 lbs.
*3/4" x 3/4"	x .062"	.205 lbs.
3/4" x 3/4"	x .125"	.374 lbs.
1" x 1"	x .062"	.278 lbs.
1" x 1"	x .125"	.526 lbs.
1 1/4" x 1 1/4"	x .062	.353 lbs.
1 1/4" x 1 1/4"	x .125"	.675 lbs.
1 1/2" x 1 1/2"	x .062"	.428 lbs.
1 1/2" x 1 1/2"	x .125"	.825 lbs.
*1 3/4" x 1 3/4"	x .062"	.502 lbs.
*1 3/4" x 1 3/4"	x .125"	.975 lbs.
*2" x 2"	x .062"	.576 lbs.
2" x 2"	x .125"	1.124 lbs.
2 1/2" x 2 1/2"	x .125"	1.425 lbs.
3" x 3"	x .125"	1.724 lbs.
4" x 4"	x .125"	2.324 lbs.

* Drawn 3003-F Alloy discontinued when sold out

RECTANGULAR ALUMINUM TUBING
Square Corners
6063-T5 Alloy & Temper
21 Ft.–1 In. Length



With Single Fin **11335** (79840) 1.682 lbs. per Ft.

With Double Fins **11336** (79841) 1.756 lbs. per Ft.

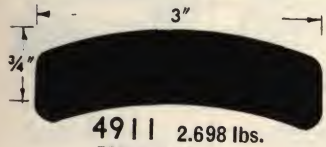
J. G. Braun Company

Skokie, Ill. EST. 1887 New York, N. Y.

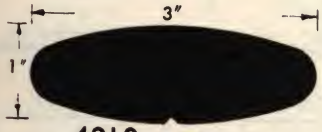
ALUMINUM HANDRAILS

AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES. SEE PAGE 1 FOR SPECIFICATIONS

Aluminum Channels in stock to fit all handrails–SEE PAGE 2. 6063-T5 Alloy and Temper. 20 Ft. Length



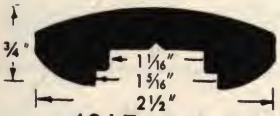
4911 2.698 lbs.
TERMINALS None



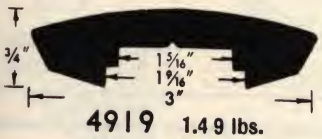
4910 2.822 lbs.
TERMINALS None



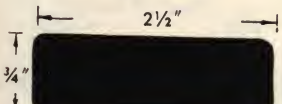
4924 3.125 lbs.
TERMINALS None



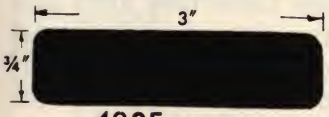
4917 1.25 lbs.
TERMINALS E, G, K,



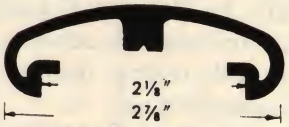
4919 1.49 lbs.
TERMINALS E, G, K,



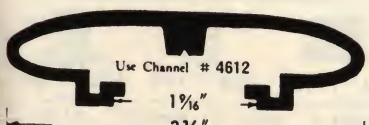
4918 2.214 lbs.
TERMINALS None



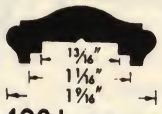
4925 2.675 lbs.
TERMINALS None



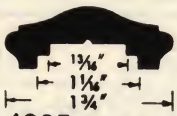
4915 .980 lbs.
TERMINALS C, D, E, F, G, H, K,



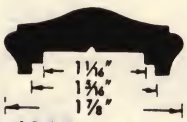
4916 1.408 lbs.
TERMINALS E,



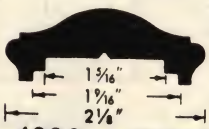
4901 .614 lbs.
TERMINALS A, B, E, F, H, K, L, M, R, S, T, AA, BB,



4905 .716 lbs.
TERMINALS C, D, E, G, M, P,



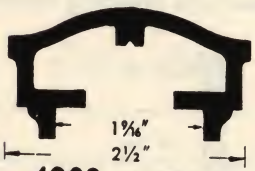
4908 .835 lbs.
TERMINALS A, B, E, F, H, K, M, R, S, T, AA, BB,



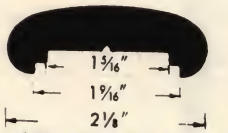
4900 1.010 lbs.
TERMINALS A, B, E, F, H, K, R, S, T,



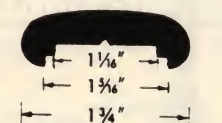
4909 (23681) .690 lbs.
TERMINALS A, B, E, F, H, K, R, S, T,



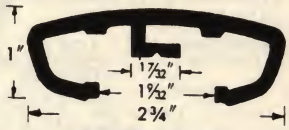
4902 1.192 lbs.
TERMINALS None



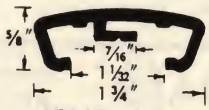
4904 1.244 lbs.
TERMINALS A, B, E, F, G, H, K,



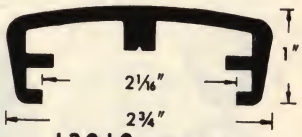
4903 .770 lbs.
TERMINALS C, D, E, G, K, P,



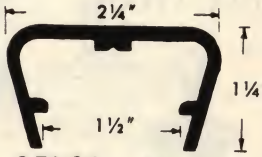
87068 871 lbs.
TERMINALS None



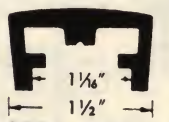
87067 .446 lbs.
TERMINALS None



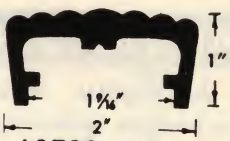
13010 .858 lbs.
TERMINALS E, G, K,



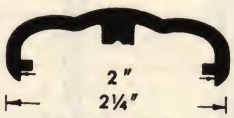
25300 .694 lbs.
TERMINALS None



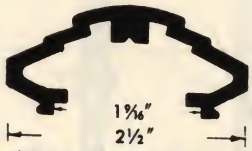
4906 .670 lbs.
TERMINALS None



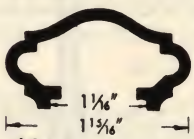
12729 .911 lbs.
TERMINALS F,



4914 .581 lbs.



4912 (3986) .816 lbs.
TERMINALS None



4913 .492 lbs.
TERMINALS None

Weights and Measurements Approximate
SCALE — HALF FULL SIZE

HANDRAIL TERMINALS

ALUMINUM No. F214 ALLOY
SATIN POLISHED FINISH UNLESS OTHERWISE SPECIFIED

All Lateral and Channel Scrolls are furnished in either RIGHT or LEFT hand. Illustrations shown are RIGHT hand. Specify LEFT or RIGHT hand when ordering Lateral or Channel Scrolls.

Write For DETAIL SHEET A - 2 - T
showing full sizes of all Terminals

A LATERAL SCROLL
SENIOR
For Handrails
4900-4901-4904-4908-4909

B MALLEABLE
CHANNEL SCROLL
SENIOR
Will Fit Handrails
4900-4901-4904-4908-4909

AA LATERAL SCROLL
INTERMEDIATE
For Handrails 4901-4908

BB MALLEABLE
CHANNEL SCROLL
INTERMEDIATE
Will Fit Handrails 4901-4908

C LATERAL SCROLL
JUNIOR
For Handrails 4903-4905-4915

D ALUMINUM CHANNEL SCROLL
JUNIOR
Will Fit Handrails 4903-4905-4915

E SQUARE TERMINAL
For Handrails
4900-4901-4903-4904-4905
4908-4909-4915-4916-4917-4919-13010

F VERTICAL END
For Handrails 4900-4901
4904-4908-4909-4915-12729

G TERMINAL END
For Handrails 4903-4904
4905-4915-4917-4919-13010

H LAMBS TONGUE
BEVEL
For Handrails 4900-4901
4904-4908-4909-4915

K CORNER BEND
For Handrails
4900-4901-4903-4904-4908
4909-4915-4917-4919-13010

L END FINIAL BASE
For Handrails 4901

M CENTER FINIAL BASE
For Handrails 4901-4905-4908

P LAMBS TONGUE
STRAIGHT
For Handrails 4903-4905

R **S** **T** CAPS
For Handrails
4900-4901-4908
4909

END CAP | CENTER CAP | CORNER CAP

BALUSTER COLLARS

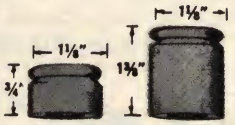
ALUMINUM F214 Alloy **SATIN POLISHED FINISH**

Specify *Aluminum* When Ordering



TYPE "W"

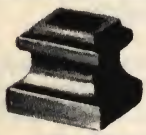
HOLE	WIDTH	HEIGHT
½" Sq.	1⅛"	1¼"
⅝" "	1 5/16"	1⅜"
¾" "	1½"	1⅝"



4218 **4219**

Furnished with ½" Dia. or 7/16" Dia. center hole

Specify hole size when ordering



TYPE "V"

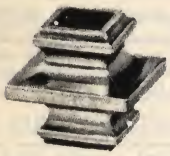
HOLE	WIDTH	HEIGHT
½" Sq.	1⅛	⅜"
⅝" "	1 5/16"	1"
¾" "	1½"	1⅛"
1" "	2"	1¼"



TYPE "P"

BALUSTER FLANGE

HOLE	WIDTH	HEIGHT
7/16"Rd.	1¾"	¾"
½"Rd.	1¾"	¾"



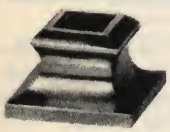
TYPE "N"

HOLE	WIDTH	HEIGHT
½" Sq	1 3/16"	1⅜"
⅝" "	1⅜"	1⅝"
¾" "	1 9/16"	1 13/16"



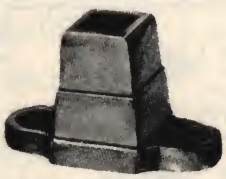
TYPE "Y"

HOLE	HEIGHT	BASE
½" Sq.	¾"	1⅛" x 2⅛"
⅝" "	⅞"	1¼" x 2¼"
¾" "	1"	1⅜" x 2½"
⅞" "	1⅛"	1½" x 2¾"
1" "	1⅛"	1¾" x 3"



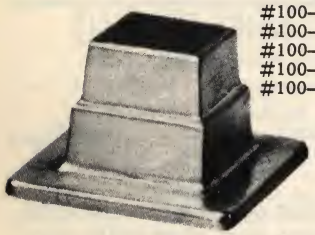
TYPE "E"

HOLE	WIDTH	HEIGHT
½" Sq.	1⅜"	¾"
⅝" "	1½"	⅞"
¾" "	1⅝"	1"
⅞" "	2"	1½"
1" "	2"	1⅛"



TYPE "Z"

HOLE	HEIGHT	BASE
½" Sq.	1⅜"	1" x 2⅜"
⅝" Sq.	1¾"	1½" x 2¾"
¾" Sq.	2"	1½" x 3¼"
⅞" Sq.	2¼"	1¾" x 3⅝"
1" Sq.	2¼"	1¾" x 3⅝"



Hole	Width	Height
#100—1"	2⅜"	1½"
#100—1¼"	3⅜"	2"
#100—1½"	3⅜"	2"
#100—2"	4⅜"	2⅜"
#100—3"	5⅜"	2½"

POST FLANGES No. 100

ARROWS AND FEATHERS

ALUMINUM -F214 Alloy **BRIGHT POLISHED FINISH**

Specify Material When Ordering



FOR ROUND RODS to ½" DIAMETER

No. 8800 ARROW Length 4½" Width 2"

No. 8802 ARROW Length 6" Width 3"



FOR ROUND RODS to ¾" DIAMETER

No. 8801 FEATHER Length 4½" Width 2"

No. 8803 FEATHER Length 6" Width 3"

also available in POLISHED BRONZE and MALLEABLE IRON

POST CAPS

ALUMINUM -F214 Alloy
SATIN POLISHED FINISH

Specify Material When Ordering

TYPE A
ALUMINUM

Square		Rectangular	
1" x 1"	2½" x 2½"	2" x 3"	3" x 8"
1¼" x 1¼"	*3" x 3"	2" x 4"	4" x 6"
1½" x 1½"	3½" x 3½"	3" x 4"	4" x 7½"
* 2" x 2"	*4" x 4"	3" x 5"	4" x 8"
		3" x 5½"	4" x 12"
		3" x 6"	

* When ordering 2", 3" & 4" Caps Specify "Round Inside" or "Square Inside" Corners





TYPE B
ALUMINUM
Square
3" x 3"
4" x 4"



TYPE C
STAINLESS STEEL
Square
3" x 3"
4" x 4"

WHEN ORDERING, SPECIFY "ALUMINUM" (also available in Iron or Bronze)

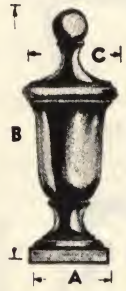
FINIALS

BRIGHT POLISHED ALUMINUM

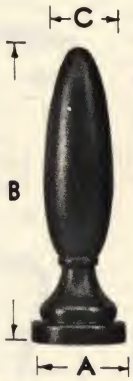
With ⅜" - 16 Tapped Hole In Base



BALL TYPE



URN TYPE



NEW DESIGN
MODERN FLAME

FINIALS ALSO AVAILABLE IN STEEL AND POLISHED BRONZE. INFORMATION ON REQUEST.

BALL TYPE FINIALS

SQUARE BASE	DIMENSIONS A	B	C	ROUND BASE
No. 4560	1"	1¾"	1"	No. 4565
No. 4561	1¼"	2⅛"	1¼"	No. 4566
No. 4562	1½"	2½"	1½"	No. 4567
No. 4564	1¾"	3¼"	2"	

URN TYPE FINIALS

SQUARE BASE	DIMENSIONS A	B	C	ROUND BASE
No. 4570	1"	3"	1¼"	No. 4597
No. 4571	1¼"	4"	1½"	No. 4598
No. 4572	1½"	5"	1¾"	No. 4599
No. 4573	1¾"	6"	2¼"	

NEW DESIGN MODERN FLAME FINIALS

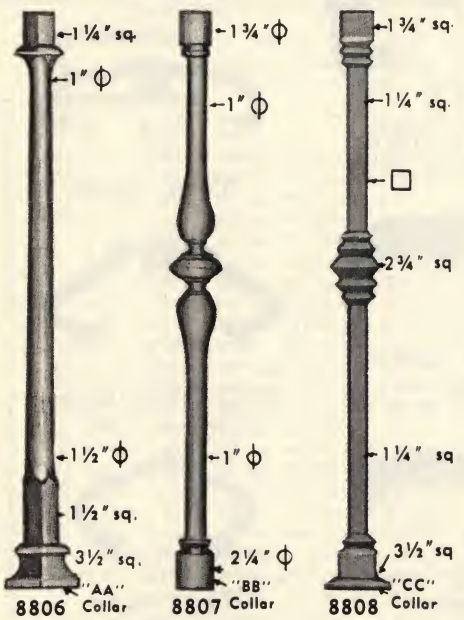
SQUARE BASE	DIMENSIONS A	B	C	ROUND BASE
No. 4407	1"	3"	¾"	No. 4406
No. 4409	1¼"	4"	1"	No. 4408

RAILING STARTING POSTS

with loose base collars
Overall Length 36"

ALUMINUM, POLISHED — SATIN FINISH F214 Alloy

WHEN ORDERING, SPECIFY "ALUMINUM" AND RESPECTIVE NUMBER. (also available in Cast Iron or Bronze)



8806 "AA" Collar **8807** "BB" Collar **8808** "CC" Collar

Smooth finish or handforged effect
Specify Finish Desired When Ordering

Upper collar-type ends of posts are of sufficient length to allow cutting to fit bevel-type terminal.

The lower ends are provided with "slip-on" base collars so that posts can be cut to height in accordance with railing designers' specification.

POST COLLARS



"AA"TYPE "BB"TYPE "CC"TYPE

TYPE	HOLE	HEIGHT	BASE
"AA"	1½" sq	2¾"	3½" sq
"BB"	1" ⌀	3"	2¼" ⌀
"CC"	1¼" sq.	3¼"	3½" sq

J. G. Braun Company

ALUMINUM PIPE RAIL FITTINGS

"BRAUN 11000" SERIES PIPERAIL FITTINGS ARE IDEAL FOR QUICK AND EASY INSTALLATION — A STURDY AND ATTRACTIVE RAIL AT REASONABLE COST.

POLISHED — SATIN FINISH F214 Alloy

Designed for 1¼" or 1½" I.P.S. Standard or Handrail Aluminum Pipe

All flanges furnished without anchorage holes, except No's. 11003, 11004, 11055, 11056

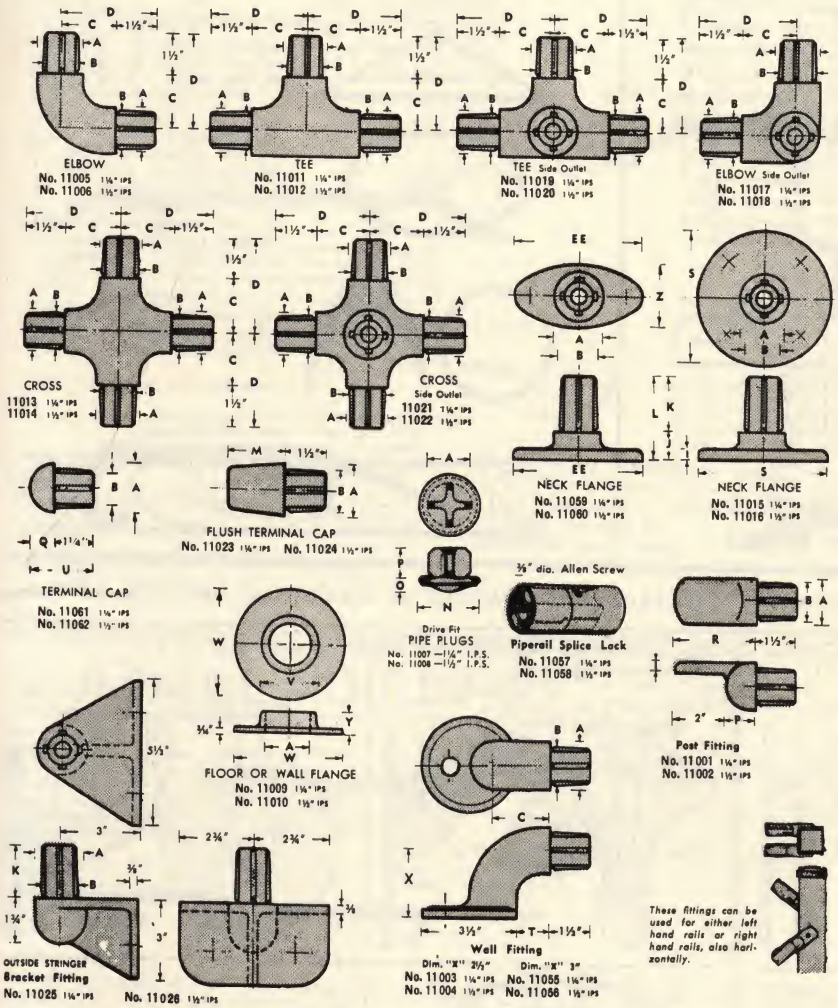
Pipe and Flush Type Fittings are fastened together by means of pins, welding or Self Tapping Screws.

WHEN ORDERING, SPECIFY "ALUMINUM FITTING" AND RESPECTIVE NUMBER.
(Pipe Fittings 11001 thru 11062 are also available in Cast Iron or Bronze)

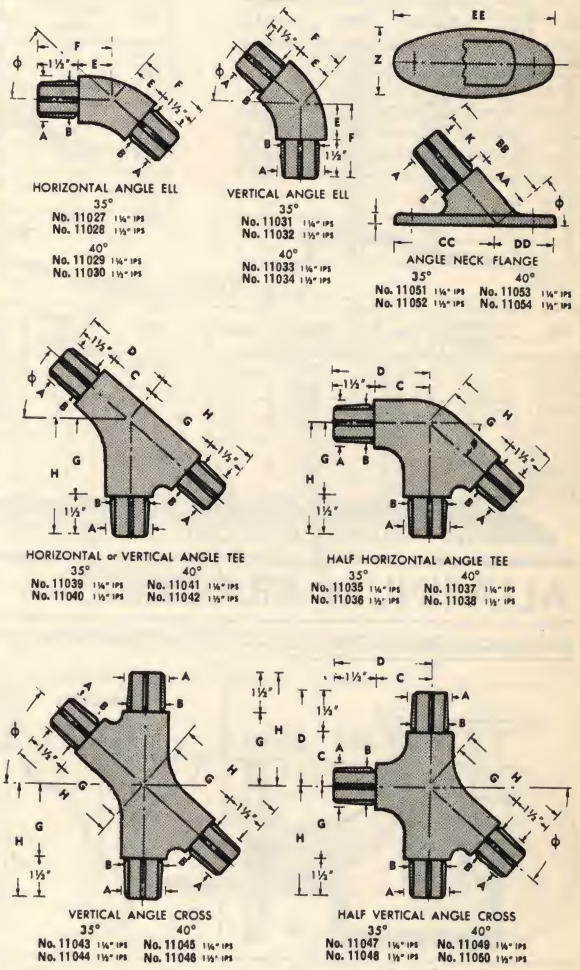
FOR SELECTION OF BRACKETS SEE PAGE 6

Measurements Approximate

90° FITTINGS



35° AND 40° FITTINGS



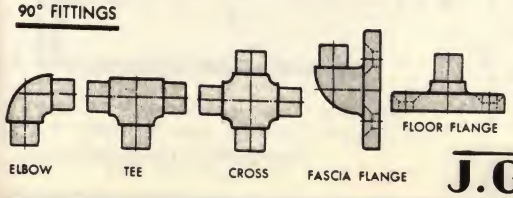
PIPE SIZE I.P.S.	FITTING ANGLE (ϕ)	DIMENSIONS—INCHES																										
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	Y	Z	AA	BB	CC	DD	EE
1¼	90°	1 21/32	1 3/8	2	3½					3/8	1	2 1/16	3 1/16	1¾	1⅞	½	1	5 3/64	3	4 5/8	1¼	2 5/64	2 1/8	3 7/8	1 3/16	2½					6
	40°	1 21/32	1 3/8	2	3½	1¼	2¾	2¾	4¼	3/8		2 1/16														2½	2⅛	4 3/16	3¾	2¼	6
	35°	1 21/32	1 1/8	2	3½	1¼	2¾	2¾	4¼	3/8		2 1/16														2½	1⅞	3 13/16	3¾	2¼	6
1½	90°	1 29/32	1 19/32	2¼	3¾					7/16	1 1/16	2 7/16	3½	2	2⅛	9/16	1⅛	6 1/64	3⅛	5⅛	1½	2 13/64	2⅜	4 3/16	⅞	2¾					6½
	40°	1 29/32	1 19/32	2¼	3¾	1½	3	3	4½	7/16		2 7/16														2¾	2 3/16	4⅜	4	2½	6½
	35°	1 29/32	1 13/32	2¼	3¾	1½	3	3	4½	7/16		2 7/16														2¾	1 15/16	4⅜	4	2½	6½

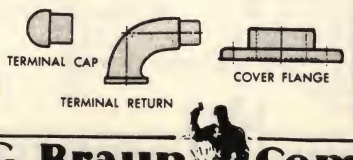
ALUMINUM I.P.S. PIPE FITTINGS—FLUSH TYPE NOT POLISHED

Fittings— F214, Cast • Fascia Flange—356-T6, Cast. • Floor Flange—6061-T6, Forged.

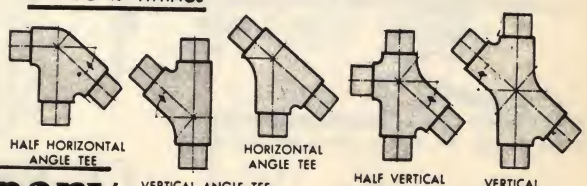
TO FIT 1¼" OR 1½" I.P.S. ALUM. PIPE.
SPECIFY 1¼" OR 1½" I.P.S., ALSO ANGLE, WHEN ORDERING

90° FITTINGS





35° AND 40° FITTINGS



CONTINUOUS HINGES

With Stainless Steel Pins

Standard Commercial Sizes
For architectural application

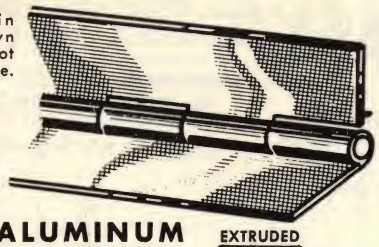
DOORS TRANSOMS SKYLIGHTS
COVERS FURNITURE CABINETS
GATES • ETC...

Sold only in lengths shown . . . not sold cut to size.

Not Pierced

Hinges may be cut for individual job application

Aluminum Hinges are Suitable for Anodizing



ALUMINUM REGULAR TYPE

5052-H34 Alloy and Temper — 72" LENGTH

NO.	WIDTH OPEN	GAUGE	PIN	JOINT
00	¾"	.032"	.0625"	⅝"
0	1⅛"	.040"	.095"	⅝"
1	1¼"	.040"	.095"	⅝"
2	1½"	.040"	.095"	⅝"
3	2"	.040"	.095"	⅝"
3½	2"	.050"	.095"	⅝"
4	2"	.062"	.1875"	1"
5	2"	.062"	.125"	⅝"
6	2½"	.062"	.125"	⅝"
7	3"	.062"	.125"	⅝"

ALUMINUM EXTRUDED

6061-T6 Alloy & Temper — 72" LENGTH

NO.	WIDTH OPEN	GAUGE	PIN	JOINT
EX-0	1⅛"	.045"	.090"	⅝"
EX-1	1¼"	.045"	.090"	⅝"
EX-2	1½"	.045"	.090"	⅝"
EX-3	2"	.045"	.090"	⅝"
EX-4	2"	.064"	.180"	1"
EX-5	1¾"	.045"	.090"	⅝"
EX-6	2"	.054"	.130"	1"
EX-7	2½"	.045"	.090"	⅝"
EX-8	2⅝"	.045"	.090"	⅝"

STAINLESS STEEL

72" LENGTH Unless Noted Otherwise

NO.	WIDTH OPEN	GAUGE	PIN	JOINT
SS-3222	¾"	.025"	.055"	½"
SS-5433	1⅛"	.040"	.095"	⅝"
SS-6433	1¼"	.040"	.095"	⅝"
SS-7433	1½"	.040"	.095"	⅝"
SS-7754	1½"	.062"	.125"	¾"
SS-9433	2"	.040"	.095"	⅝"
SS-9653	2"	.050"	.125"	⅝"

NO.	WIDTH OPEN	GAUGE	PIN	JOINT
SS-9754	2"	.062"	.125"	¾"
SS-11653	3"	.050"	.125"	⅝"
SS-11754	3"	.062"	.125"	¾"
SS-11878	3"	.078"	.250"	2"
SS-111078	3"	.093"	.250"	2"
*SS-11988	3"	.125"	.375"	2"
*SS-13768	4"	.062"	.188"	1"

* Length—84"

BRONZE HINGES ALSO STOCKED, STOCKLIST SENT ON REQUEST

1800 SERIES ALUMINUM

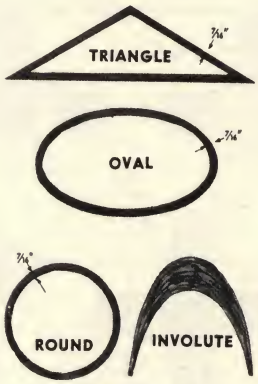
TREILLAGE CASTINGS

WHEN ORDERING, SPECIFY "ALUMINUM" AND RESPECTIVE NUMBER. (also available in Cast Iron or Bronze)

MODERN DESIGNS — SIMPLE OR INTRICATE CAN BE PRODUCED

ALSO PRACTICAL FOR FABRICATING RAILINGS, GRILLS, GATES, FURNITURE, FIXTURES, NOVELTIES, ETC. ETC.

Now the fabricator can produce unlimited varieties of treillage and railing designs –



TRIANGLE
NO. 1800 - LARGE, 17" x 4 7/8"
NO. 1801 - MEDIUM, 11 1/2" x 3 5/16"
NO. 1802 - SMALL, 7 1/2" x 2 3/16"

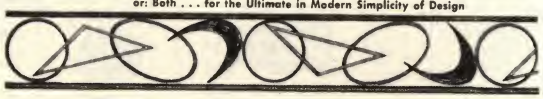
OVAL
NO. 1803 - LARGE, 12" x 7"
NO. 1804 - MEDIUM, 9" x 5 1/4"
NO. 1805 - SMALL, 6" x 3 1/2"

ROUND
NO. 1806 - LARGE, 8 1/2" O. D.
NO. 1807 - MEDIUM, 6" O. D.
NO. 1808 - SMALL, 4" O. D.

INVOLUTE
NO. 1809 - LARGE, 8 1/2" x 8 1/2"
NO. 1810 - MEDIUM, 6" x 6"
NO. 1811 - SMALL, 4" x 4"

THICKNESS OF ALL ORNAMENTS 7/32"

Write for: Four Page Circular "1800 TREILLAGE Designs"
or: Two Page Circular "1800 RAILING PANEL Designs"
or: Both . . . for the Ultimate in Modern Simplicity of Design

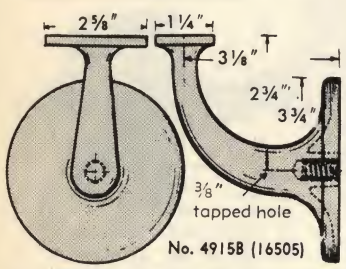


ALUMINUM BRACKETS

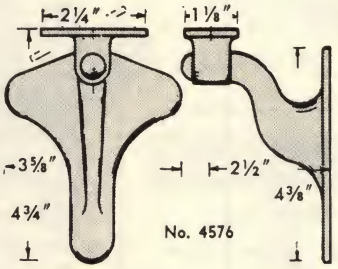
CAST IN F 214 ALLOY

SEE PAGE 6 FOR SELECTION OF BRAUN "11000 SERIES" Piperail Fittings

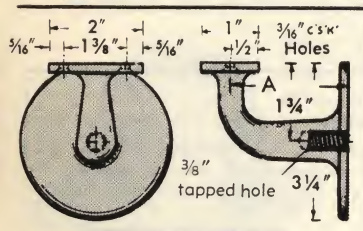
Flat Top for Bar or Channel — SATIN POLISHED FINISH



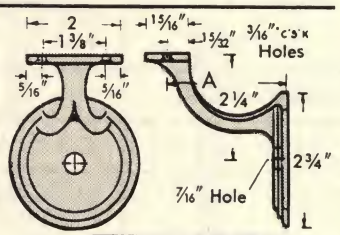
No. 4915B (16505)



No. 4576

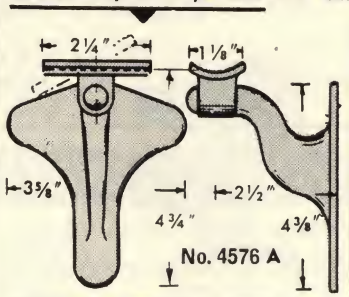


Dim. "A" 2½"	Dim. "A" 3"
No. 4587	No. 4499-3"

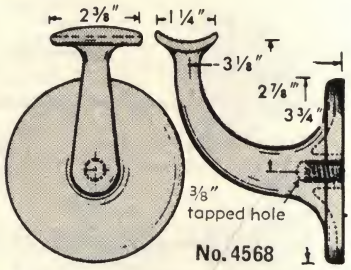


Dim. "A" 2½"	Dim. "A" 3"
No. 4580	No. 4495-3"

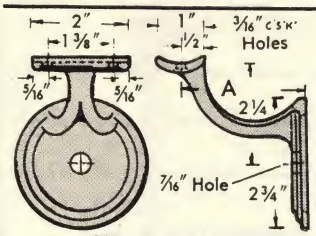
Curved Top for Pipe Rail — SATIN POLISHED FINISH



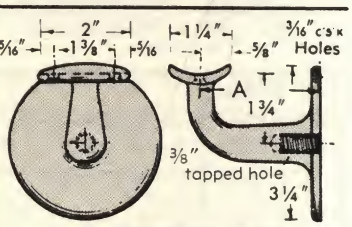
No. 4576 A



No. 4568

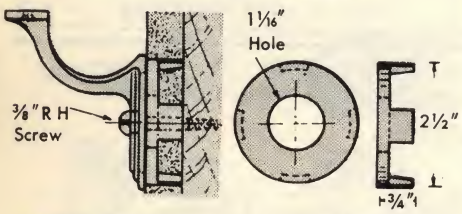


Dim. "A" 2½"	Dim. "A" 3"
No. 4579	No. 4494-3"



Dim. "A" 2½"	Dim. "A" 3"
No. 4593	No. 4498-3"

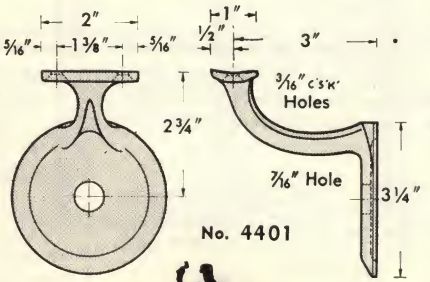
WALL BRACKET FILLER



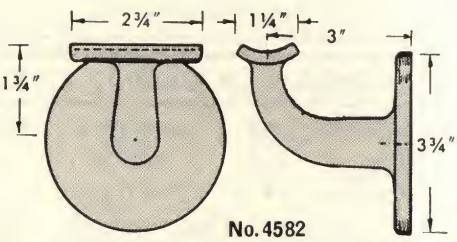
SKETCH SHOWING FASTENING OF BRACKET USING FILLER No. 4405

No. 4405
CAST IRON
WALL BRACKET FILLER

Top for Bar or Channel or Pipe Rail



No. 4401



No. 4582

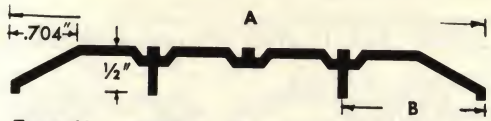
Measurements Approximate

J.G. Braun Company

ALUMINUM THRESHOLDS

Can be furnished in cut to size lengths, drilled and countersunk.

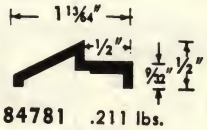
6063-T5 Alloy and Temper — 16 Ft. 3 In. Length — *Weights and Measurements Approximate*



Type H – suitable for floor mounted door checks

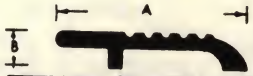
Number	A	B	Weight per foot
* 84782	4"	2.000"	.630 lbs.
84783	5"	1.450"	.804 lbs.
84784	6"	2.000"	.988 lbs.
84785	7"	2.243"	1.127 lbs.

* Single Leg In Center Only

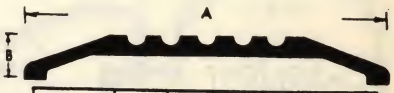


84781 .211 lbs.
Threshold Miter Strip

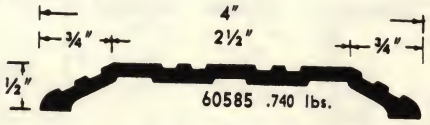
For Type H Thresholds

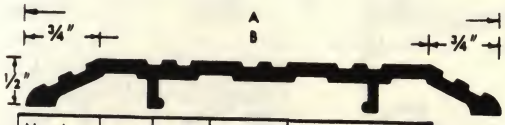


Number	A	B	Weight per foot
10346	1¼"	17/64"	.180 lb.
P3796	1⅜"	¼"	.184 lb.
38653	1⅜"	17/64"	.194 lb.
10347	1½"	17/64"	.232 lb.
38654	1⅜"	17/64"	.224 lb.

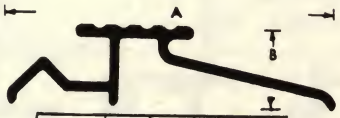


Number	A	B	Weight per foot	Number Grooves
P3650	3"	½"	.658 lb.	5
38651	3"	½"	.721 lb.	3
4704	4"	5/8"	.963 lb.	5
P3651	4"	½"	.787 lb.	5
19047	4"	½"	.829 lb.	5
4705	5"	5/8"	1.147 lb.	6
P3662	5"	½"	1.002 lb.	5
19048	5"	½"	1.102 lb.	6
4706	6"	5/8"	1.291 lb.	7
P3663	6"	½"	1.189 lb.	5
19049	6"	½"	1.226 lb.	7
26638	7"	½"	1.777 lb.	9

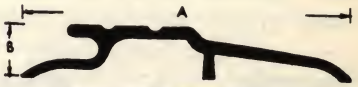




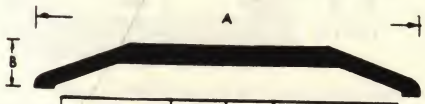
Number	A	B	Grooves	Weight per foot
60586	5"	3½"	10	1.014 lbs.
60587	6"	4½"	12	1.183 lbs.
60588	7"	5½"	14	1.352 lbs.



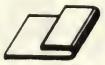
Number	A	B	Weight per foot
5192	3½"	⅞"	.649 lb.
20999	3½"	⅞"	.661 lb.
38658	4¼"	⅞"	.760 lb.



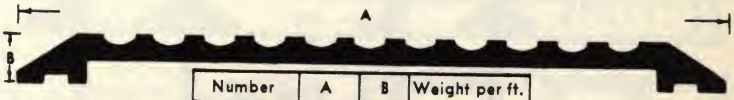
Number	A	B	Weight per foot
4805 or 10353	3½"	9/16"	.595 lb.
P3704	3½"	9/16"	.577 lb.
38649	4¼"	9/16"	.689 lb.
P3798	4¼"	5/8"	.701 lb.



Number	A	B	Weight per ft.
4802	2½"	¼"	.402 lb.
4803 or 10351	3"	¼"	.476 lb.
4804 or 10352	4 5/64"	½"	.894 lb.



4708
Weather Strip Section
16-Foot Random Length
for Thresholds
Nos 3704 3798 4805 5192
10353 20999 38649 38658



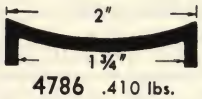
Number	A	B	Weight per ft.
4807 or 7032	7½"	½"	1.798 lb.
7883	7½"	½"	1.769 lb.

ALUMINUM MOULDINGS

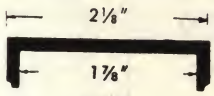
6063-T5 Alloy and Temper
16 Ft. Lgth unless otherwise specified

SCALE — HALF FULL SIZE — *Weights and Measurements Approximate*

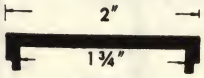
DOOR SECTIONS



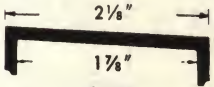
4786 .410 lbs.



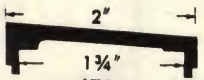
4775
.431 lbs.



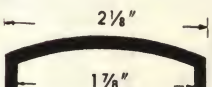
4791
.366 lbs.



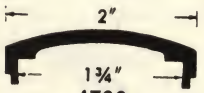
4779
.431 lbs.



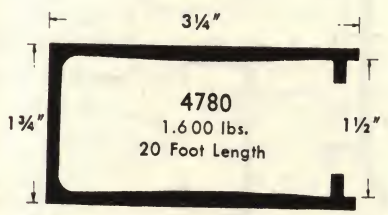
4792
.454 lbs.



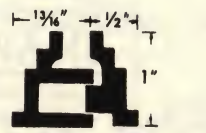
4778
.438 lbs.



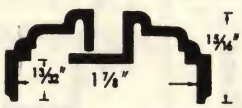
4788
.414 lbs.



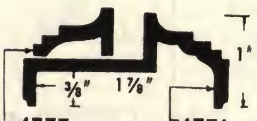
4780
1.600 lbs.
20 Foot Length



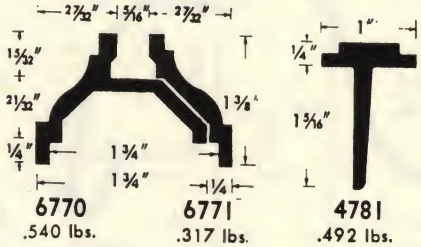
4793 .361 lbs. 4794 .330 lbs.



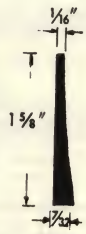
4774 .220 lbs. 4773 .295 lbs.



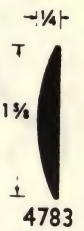
4777 .209 lbs. 4776 .528 lbs.



6770 .540 lbs. 6771 .317 lbs.



4703
.227 lbs.

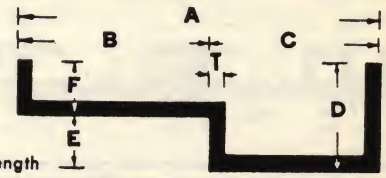


4783
.372 lbs.

4781
.492 lbs.

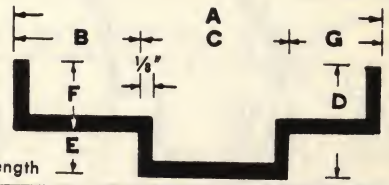
ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES.
SEE PAGE 1 FOR FINISHES AND SPECIFICATIONS

DOOR FRAME SECTIONS



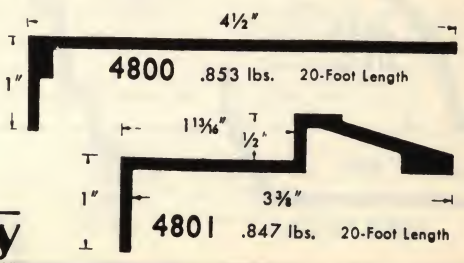
16 Ft. Length

Number	A	B	C	D	E	F	T
1782 .436 lbs.	2 5/16"	1⅜"	1 13/16"	¾"	⅜"	⅜"	3/32"
3728 1.163 lbs.	4½"	2"	2½"	1¾"	½"	1¼"	⅛"
8792 1.313 lbs.	6"	1 13/16	4 3/16"	1½"	½"	1"	⅛"



16 Ft. Length

Number	A	B	C	D	E	F	G
7648 1.350 lbs.	6"	2⅜"	1¾"	1⅝"	5/8"	1"	1⅞"
6498 1.359 lbs.	6 3/16"	1⅞"	2 5/16"	1½"	½"	1"	1⅞"



ALUMINUM MOULDINGS

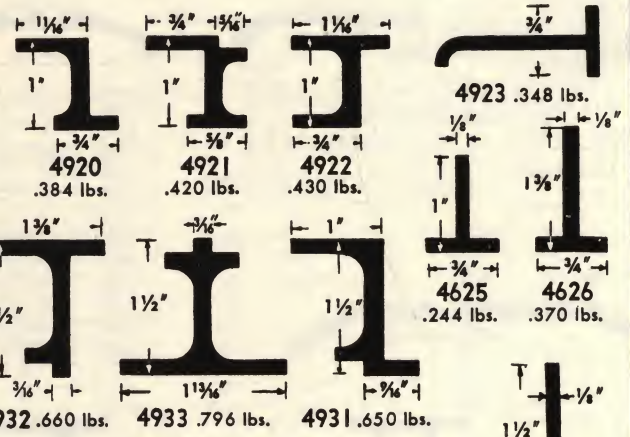
SCALE — HALF FULL SIZE *Weights and Measurements Approximate*

Alloy and Length as listed

ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES. SEE PAGE 1 FOR FINISHES AND SPECIFICATIONS

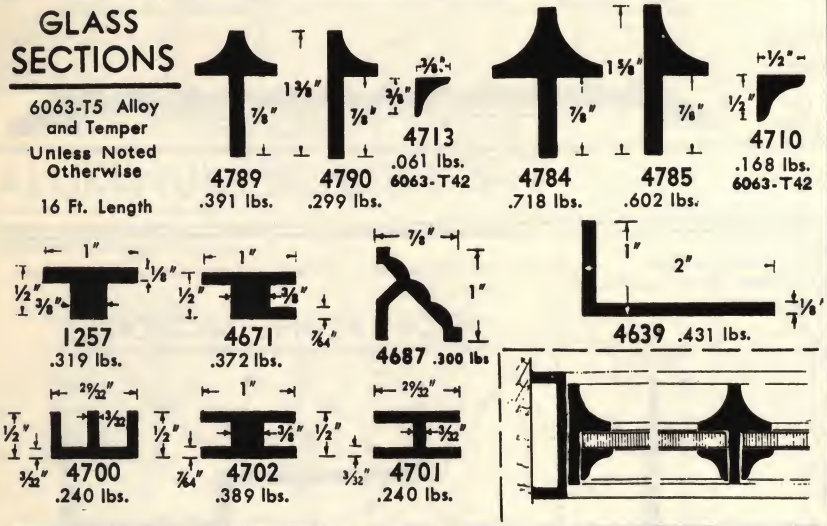
CASEMENT SECTIONS

6063-T5 Alloy and Temper
16 Ft. Length



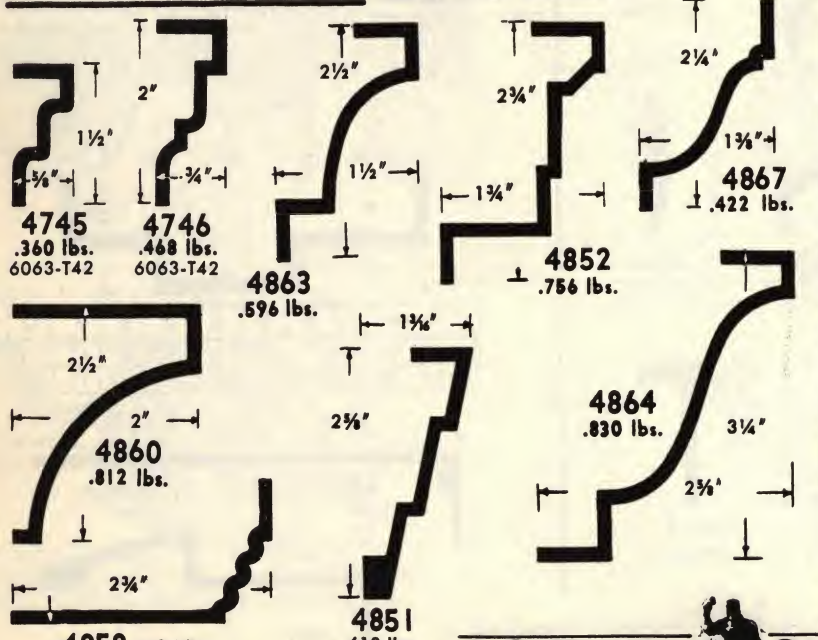
GLASS SECTIONS

6063-T5 Alloy and Temper
Unless Noted Otherwise
16 Ft. Length



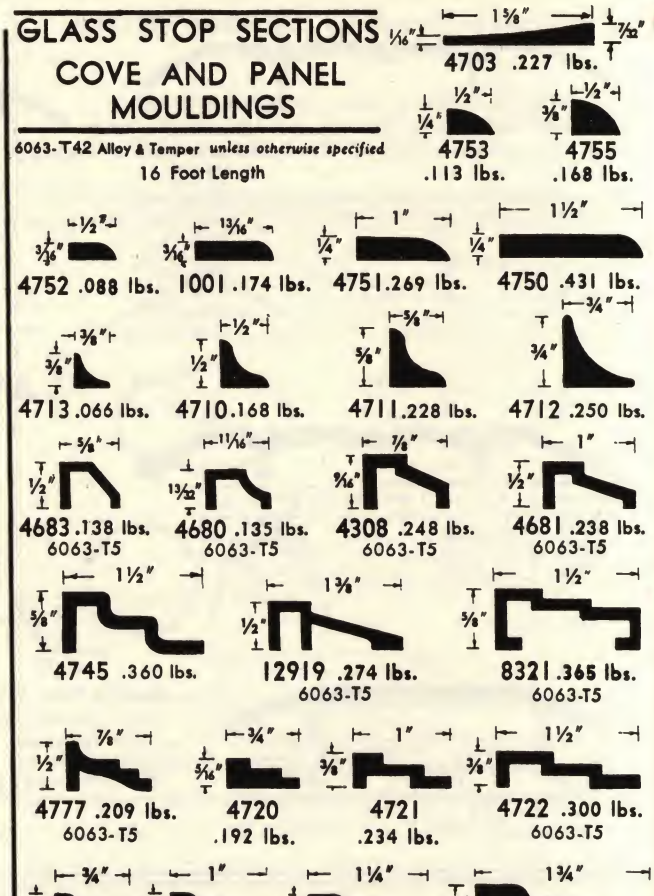
CORNICE MOULDINGS

6063-T5 Alloy and Temper Unless Noted Otherwise — 16 Ft. Length



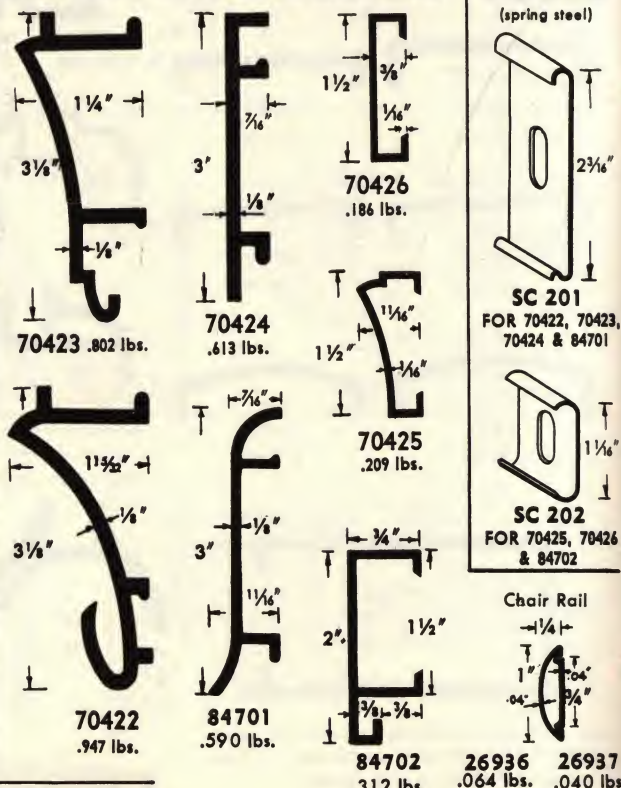
GLASS STOP SECTIONS
COVE AND PANEL MOULDINGS

6063-T42 Alloy & Temper *unless otherwise specified*
16 Foot Length



SNAP-ON MOULDINGS

16 Ft. Length 6063-T5 Alloy & Temper *unless otherwise specified*



CLIPS FOR SNAP ON MOULDINGS
(spring steel)

Chair Rail

J. G. Braun Company

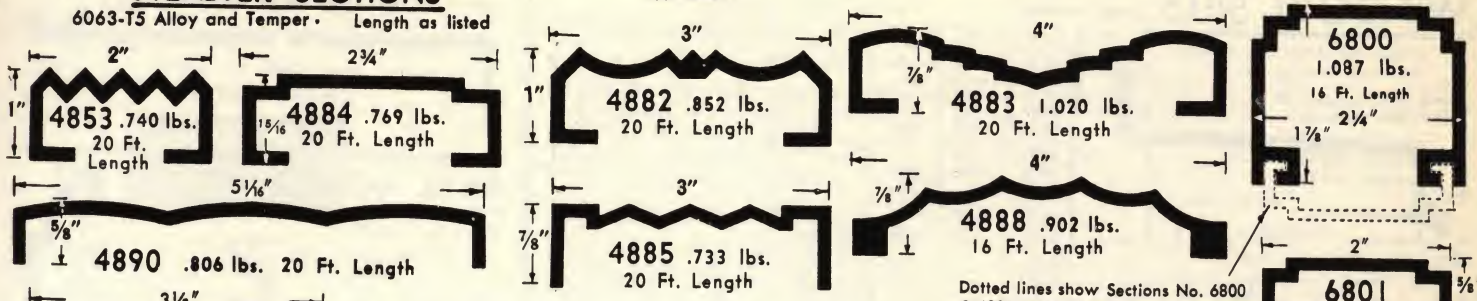
ALUMINUM MOULDINGS

SCALE — HALF FULL SIZE
Weights and Measurements Approximate

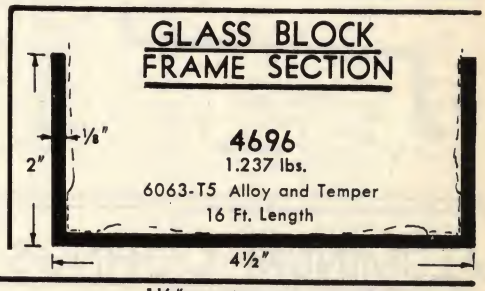
ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES. SEE PAGE 1 FOR FINISHES AND SPECIFICATIONS

PILASTER SECTIONS

6063-T5 Alloy and Temper · Length as listed

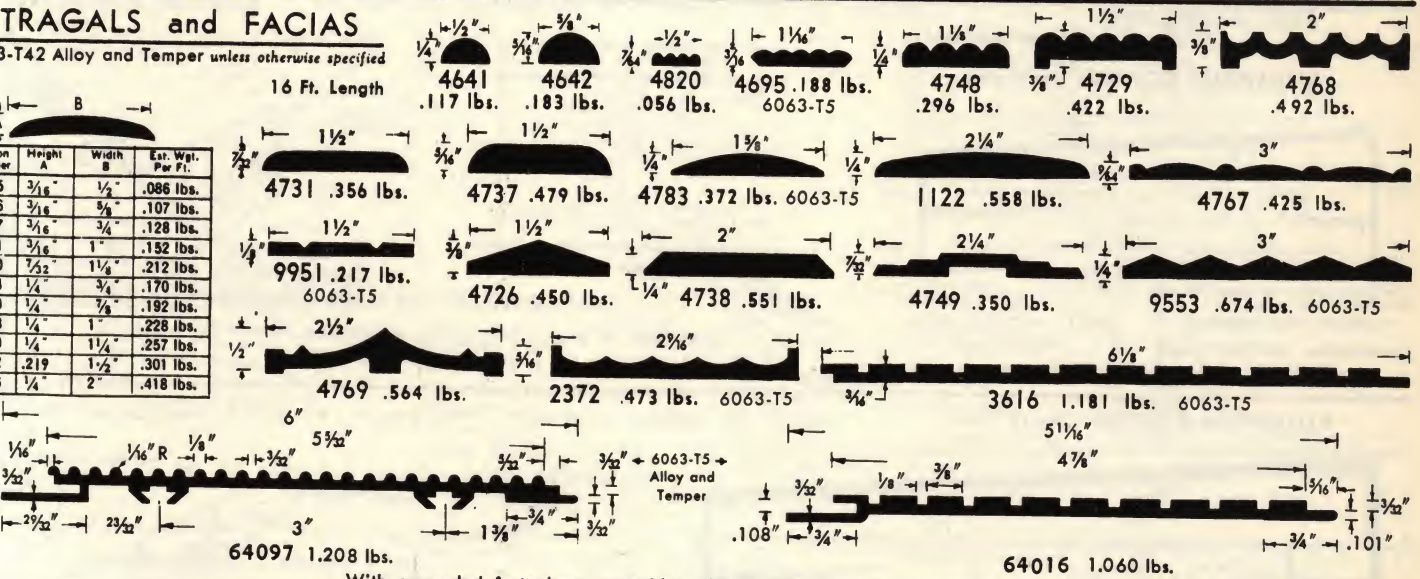


GLASS BLOCK FRAME SECTION



ASTRAGALS and FACIAS

6063-T42 Alloy and Temper *unless otherwise specified*
16 Ft. Length

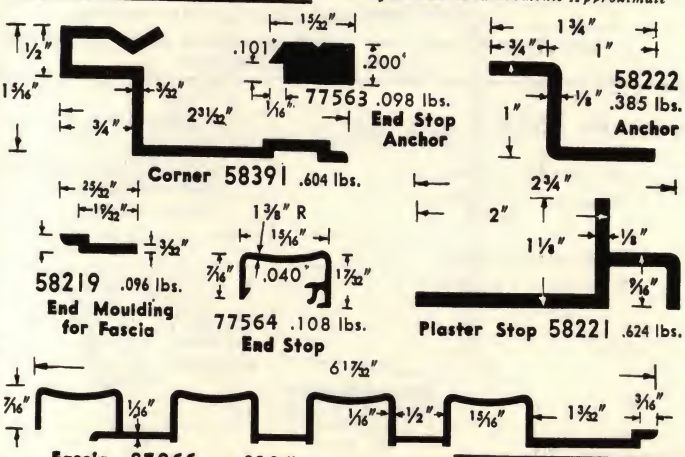


Section Number	Height A	Width B	Est. Wgt. Per Ft.
4645	3/16"	1/2"	.086 lbs.
4646	3/16"	5/8"	.107 lbs.
4647	3/16"	3/4"	.128 lbs.
4661	3/16"	1"	.152 lbs.
4660	7/32"	1 1/8"	.212 lbs.
4674	1/4"	3/4"	.170 lbs.
4669	1/4"	7/8"	.192 lbs.
4658	1/4"	1"	.228 lbs.
4659	1/4"	1 1/4"	.257 lbs.
4662	.219	1 1/2"	.301 lbs.
4676	1/4"	2"	.418 lbs.

With concealed fastenings; assembles with itself to form continuous fascia.

FACIA SYSTEM

6063-T5 Alloy and Temper 16 Ft. Lgth
Weights and Measurements Approximate



SCALE — HALF FULL SIZE

ALUMINUM WELDING RODS

FOR ARCHITECTURAL APPLICATION

Standard Alloys . . . Etched Finish

1100*		4043**		5356***	
Length	Diam.	Length	Diam.	Length	Diam
36"	3/16"	36"	3/16"	36"	3/16"
36"	5/32"	36"	5/32"	36"	5/32"
36"	1/8"	36"	1/8"	36"	1/8"
36"	3/32"	36"	3/32"	36"	3/32"
36"	1/16"	36"	1/16"	36"	1/16"

Packaged in Round Cardboard Tubes.
5 Lbs Welding Rod in each tube.
36 Inch Straight Lengths.

When Ordering
Specify Rod Alloy and Rod Diameter

CHOICE OF ALLOYS
Welding Rod

*1100 Used for welding Alloys 1100 and 3003 Parent Metals. Good Color Match for Anodizing; Good Ductility

**4043 General Purpose for all Weldable Aluminum Alloys (Turns dark after anodizing)

***5356 Used for Arc Welding all Weldable Aluminum Alloys Except 1100 and 3003. Recommended for 6063 Alloys. Excellent for Color Match After Anodizing

ALUMINUM WELDING FLUX

WELDING FLUX No. 22 (Use — Torch Flame Welding PREFERABLY FOR ALLOYS 3003 & 6063) Packed in 1 Lb., and 5 Lb. Containers

Specify size container when ordering

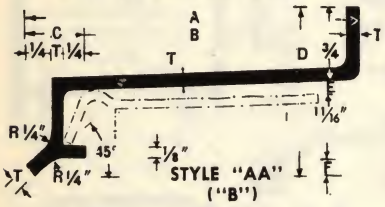
ALUMINUM MOULDINGS

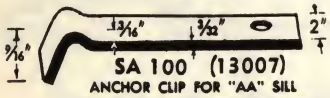
Weights and Measurements Approximate
SCALE — HALF FULL SIZE

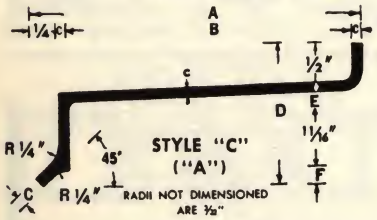
WINDOW SILLS

Length as listed

6063-T42 Alloy and Temper







STYLE "AA" ("B")

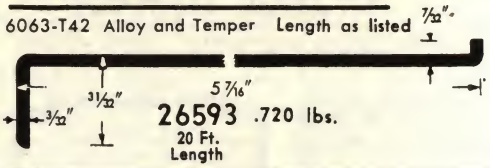
SECTION NO. 20 Ft. Length	SECTION NO. 21 Ft. Length	WT. Per Ft., Lbs.	DIMENSIONS—INCHES A	B	C	D	E	F	t
54684	13695	.767	3 1/2	2 3/4	5/8	1 13/16	3/16	3/16	1/8
54685	13696	.842	4	3 1/4	5/8	1 27/32	7/32	3/16	1/8
54686	9558	.919	4 1/2	3 3/4	5/8	1 7/8	1/4	3/16	1/8
54687	13008	.994	5	4 1/4	5/8	1 29/32	9/32	3/16	1/8
54688	13009	1.067	5 1/2	4 3/4	5/8	1 15/16	5/16	3/16	1/8
54689	13697	1.141	6	5 1/4	5/8	1 31/32	11/32	3/16	1/8
54690	13698	1.529	6 9/16	5 3/4	2 1/32	2	3/8	3/16	5/32
54691	—	1.716	7 9/16	6 3/4	2 1/32	2 1/16	7/16	3/16	5/32
54692	—	2.189	8 1/8	7 1/4	1 1/16	2 5/32	1 5/32	1/4	3/16
54693	—	2.414	9 1/8	8 1/4	1 1/16	2 7/32	1 7/32	1/4	3/16

STYLE "C" ("A")

SECTION NO. 20 Ft. Length	SECTION NO. 21 Ft. Length	WEIGHT Per Ft. Lbs.	DIMENSIONS—INCHES A	B	C	D	E	F
37734	—	.524	3 7/16	3	3/32	1 9/16	3/16	3/16
37735	—	.574	3 15/16	3 1/2	3/32	1 1 9/32	7/32	3/16
37736	—	.636	4 7/16	4	3/32	1 5/8	1/4	3/16
37737	3686	.691	4 15/16	4 1/2	3/32	1 21/32	9/32	3/16
37738	3687	.746	5 7/16	5	3/32	1 11/16	5/16	3/16
37739	3685	.804	5 15/16	5 1/2	3/32	1 23/32	11/32	3/16
37740	—	1.147	6 1/2	6	1/8	1 3/4	3/8	3/16
37745	—	1.903	9 1/16	8 1/2	5/32	1 31/32	17/32	1/4

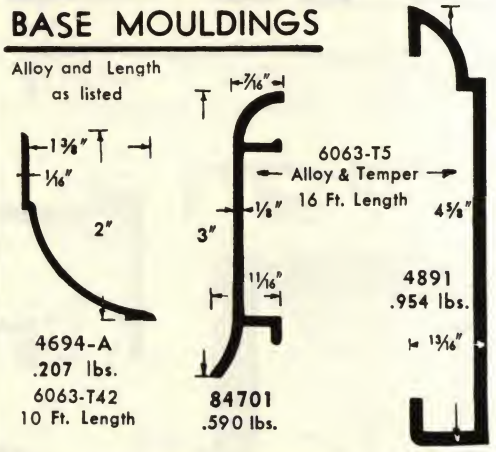
WINDOW STOOL

6063-T42 Alloy and Temper Length as listed



BASE MOULDINGS

Alloy and Length as listed



ALUMINUM COPINGS AND ACCESSORIES

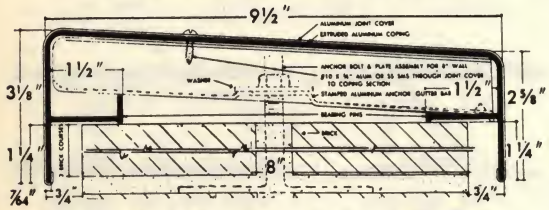
6063-T42 Alloy and Temper Length as listed

Weights and Measurements Approximate

ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES. SEE PAGE 1 FOR FINISHES AND SPECIFICATIONS

MITERED CORNERS FOR SECTIONS SHOWN ARE LISTED ON PAGE 11

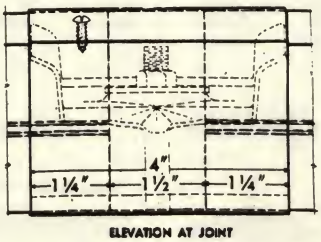
ALUMINUM COPING For 8" Wall



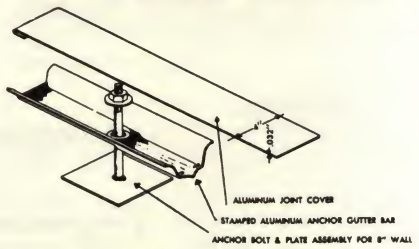
66611 – 8" COPING 2.412 Lbs./Ft. 9'10½" Length

66611 – Joint Cover 4 In. Length

Use #10 x ¾" Stainless Steel Sheet Metal Screw



ELEVATION AT JOINT

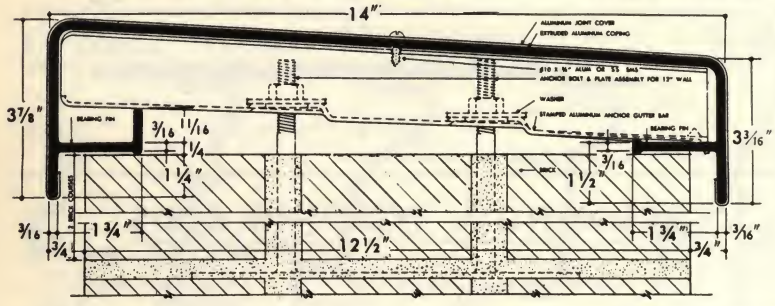


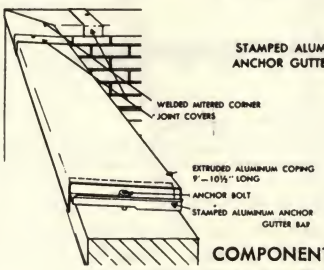
COMPONENT PARTS FOR 66611/8" COPING

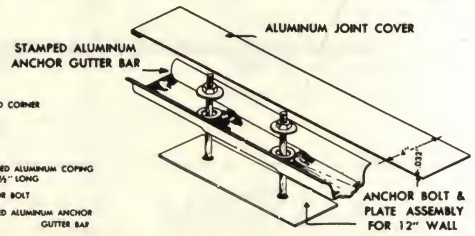
Joint Cover ● Anchor Bolt & Plate Assembly ● Anchor Gutter Bar
Outside Mitre ● Inside Mitre

ALUMINUM COPING For 12" Wall

69177 12" COPING 5.552 Lbs./Ft. 9'10½" Length ● **69177 Joint Cover** 4 In. Length

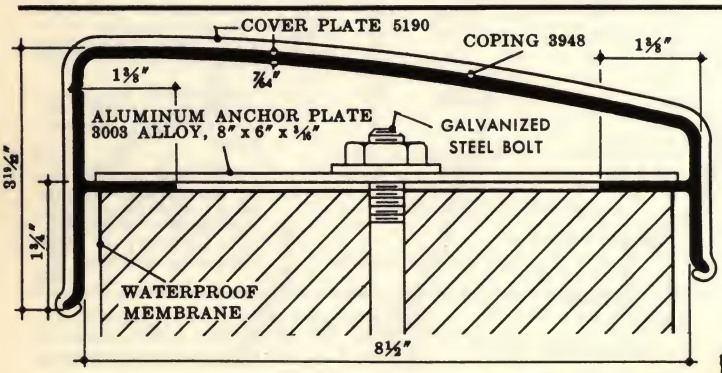






COMPONENT PARTS FOR 69177/12" COPING

Joint Cover ● Anchor Bolt & Plate Assembly ● Anchor Gutter Bar
Outside Mitre ● Inside Mitre

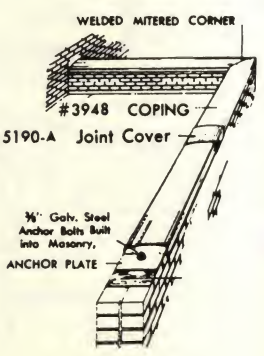


ALUMINUM COPING For 8" Wall

3948 – 8" COPING
2.210 Lbs./Ft. 10 Ft. Length

5190 – Joint Cover
1.991 Lbs./Ft. 0' 6" Length





ALUMINUM GRAVEL STOPS
AND ACCESSORIES

6063-T42 Alloy and Temper Length as listed

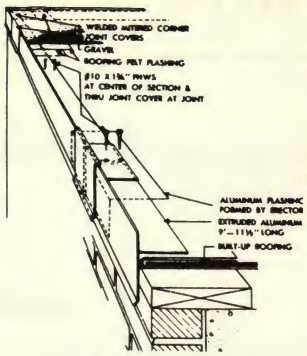
Weights and Measurements Approximate

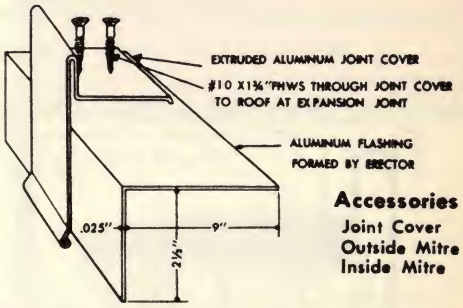
ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES. SEE PAGE 1 FOR FINISHES AND SPECIFICATIONS

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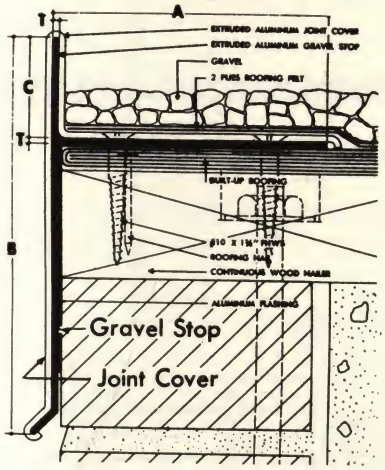
GRAVEL STOP
EXTRUDED ALUMINUM
FOR BONDED ROOFS

Use #10 x 1¾" F.H. Stainless Steel Wood Screw.





Accessories
Joint Cover
Outside Mitre
Inside Mitre



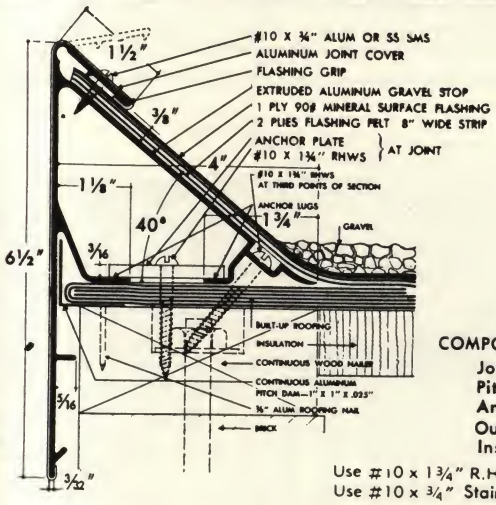
SEE IMPROVED No. 87097 →

SEE IMPROVED No. 87096 →

SEE IMPROVED No. 84968 →

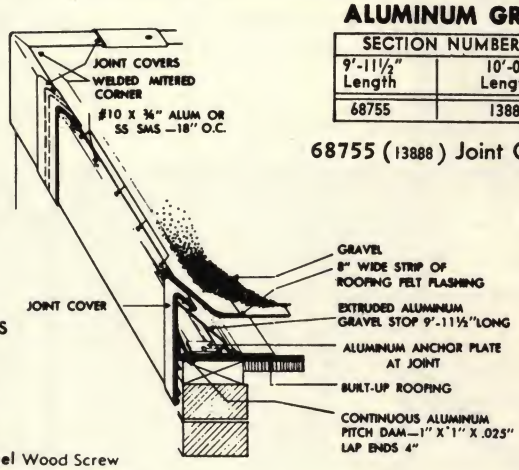
DIE NO. Gravel Stop	DIMENSIONS A	B	C	T	Length	Weight Per Foot
42059	4"	3½"	⅝"	3/32"	9'11½"	.848 lb.
87097	4"	3½"	1"	3/32"	9'11½"	.848 lb.
4632	4"	3½"	1"	3/32"	10'	.839 lb.
42058	4"	5"	1"	3/32"	9'11½"	1.029 lb.
9852	4"	5"	1"	3/32"	10'	1.052 lb.
13436	4"	6"	1½"	3/32"	10'	1.145 lb.
66588	4"	6"	1½"	3/32"	9'11½"	1.145 lb.
39259	4"	6½"	¾"	3/32"	9'11½"	1.201 lb.
87096	4"	6½"	1"	3/32"	9'11½"	1.201 lb.
8972	4"	6½"	1"	3/32"	10'	1.177 lb.
42063	4"	7¾"	⅝"	⅛"	9'11½"	1.768 lb.
13011	4"	7¾"	1"	⅛"	10'	1.758 lb.
84968	4"	7¾"	1½"	⅛"	9'11½"	1.768 lb.

DIE NO. Joint Cover	Weight Per Foot	Weight Per 6" Pc As Furnished
42062	1.000 lb.	.500 lb.
87098	1.042 lb.	.521 lb.
4691	.668 lb.	.334 lb.
42061	1.229 lb.	.615 lb.
9853	1.219 lb.	.610 lb.
13492 A	1.375 lb.	.688 lb.
66589	1.375 lb.	.688 lb.
39258	1.340 lb.	.670 lb.
87095	1.368 lb.	.684 lb.
8973	1.390 lb.	.695 lb.
42060	1.994 lb.	.997 lb.
13012	2.024 lb.	1.012 lb.
84969	2.125 lb.	1.063 lb.



COMPONENT PARTS
Joint Cover
Pitch Dam
Anchor Plate
Outside Mitre
Inside Mitre

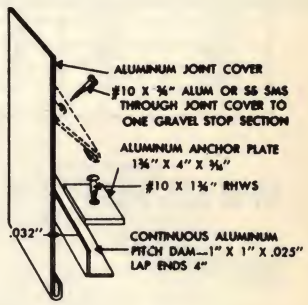
Use #10 x 1¾" R.H. Stainless Steel Wood Screw
Use #10 x ¾" Stainless Steel Sheet Metal Screw



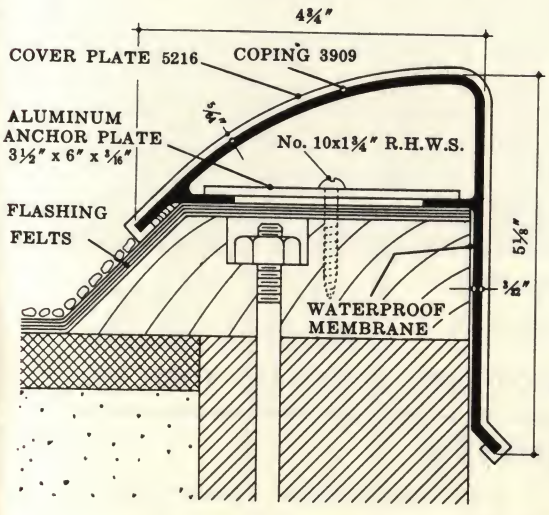
ALUMINUM GRAVEL STOP

SECTION NUMBER 9'-11½" Length	10'-0" Length	WEIGHT Per Ft., Lbs.
68755	13888	1.606

68755 (13888) Joint Cover 4 In. Length

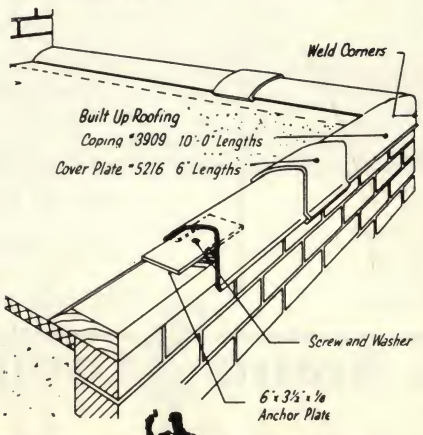


ALUMINUM GRAVEL STOP



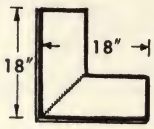
3909
Gravel Stop
10 Ft. Length
1.385 lbs. per Ft.

5216
Joint Cover
6 In. Length
1.085 lbs. per Ft.

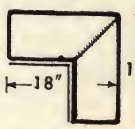


MITRED CORNERS
for Copings and Gravel Stops
FURNISHED WITH UNGROUND WELD AREAS

90° CORNERS — AVAILABLE FROM STOCK



Outside Corner



Inside Corner

SPECIFY "OUTSIDE 90°" OR "INSIDE 90°" WHEN ORDERING.

3133	13524	66611
3909	13883-84	68755
3948	13886	69177
4632	13887	79587-88
7886	13888	79591
8972	39259	79592
9852	42058	84968
13011	42059	87096
13436	42063	87097
	66588	

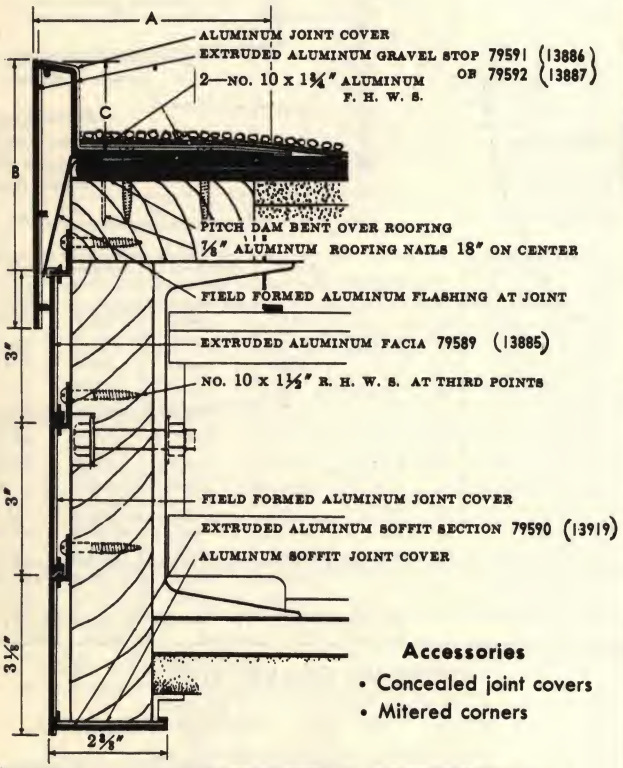
ALUMINUM GRAVEL STOPS
AND ACCESSORIES

ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES. SEE PAGE 1 FOR FINISHES AND SPECIFICATIONS

MITRED CORNERS FOR SECTIONS SHOWN ARE LISTED ON PAGE 11

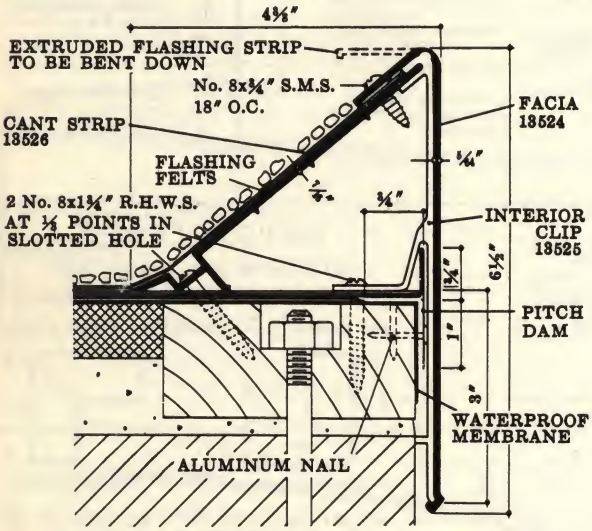
6063-T42 Alloy and Temper Length as listed

Weights and Measurements Approximate

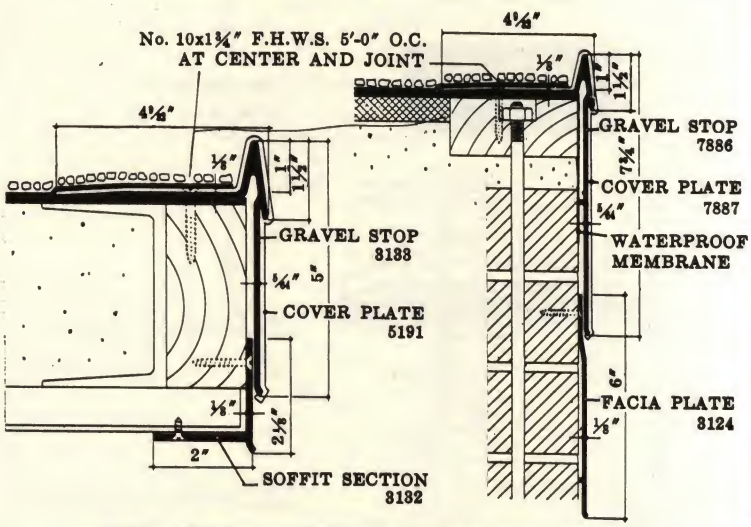


Accessories
- Concealed joint covers
- Mitered corners

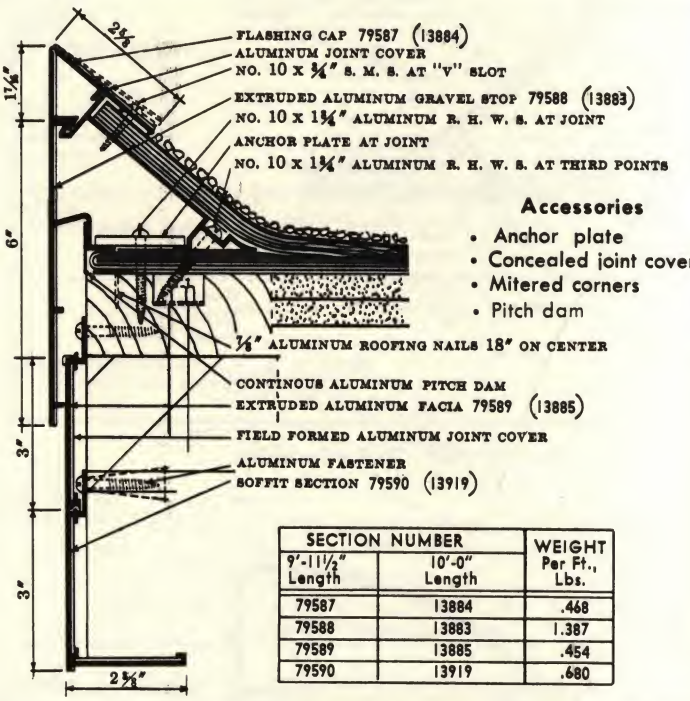
SECTION NUMBER 9'-11½" Length	SECTION NUMBER 10'-0" Length	WEIGHT Per Ft., Lbs.	DIMENSIONS—INCHES A	B	C	T
79591	13886	1.126	4¾	4⅝16	¾	3/32
79592	13887	1.350	4¾	5⅝16	1¾	3/32
79589	13885	.454	SEE ILLUSTRATION			
79590	13919	.680	SEE ILLUSTRATION			



SECTION NO.		WT. LBS./FT.	LENGTH
FACIA	13524	.789	10'-0"
CANT STRIP	13526	.448	10'-0"
CLIP	13525	.888	0'-8" & 0'-8"



SECTION NO.		WT. LBS./FT.	LENGTH
GRAVEL STOP	8133	1.468	10'-0"
COVER PLATE	5191	1.026	0'-6"
GRAVEL STOP	7886	1.898	10'-0"
COVER PLATE	7887	1.284	0'-6"
FACIA PLATE	8124	.948	10'-0"
SOFFIT SECTION	8132	.610	10'-0"



Accessories
- Anchor plate
- Concealed joint covers
- Mitered corners
- Pitch dam

SECTION NUMBER 9'-11½" Length	SECTION NUMBER 10'-0" Length	WEIGHT Per Ft., Lbs.
79587	13884	.468
79588	13883	1.387
79589	13885	.454
79590	13919	.680

WE SUGGEST:
STAINLESS STEEL SCREWS

AVAILABLE FROM STOCK

- # 10 x ¾" S/S R. H. S M S (TYPE A)
- # 8 x ¾" S/S R. H. S M S (TYPE A)
- # 10 x ¾" S/S F. H. WOOD SCREWS
- # 10 x 1½" S/S R. H. WOOD SCREWS
- # 10 x 1¾" S/S R. H. WOOD SCREWS
- # 10 x 1¾" S/S F. H. WOOD SCREWS
- # 8 x 1¾" S/S R. H. WOOD SCREWS

"SERVICE IS OUR BEST SALESMAN" SINCE 1887 . . .

J. G. Braun Company

EST. 1887

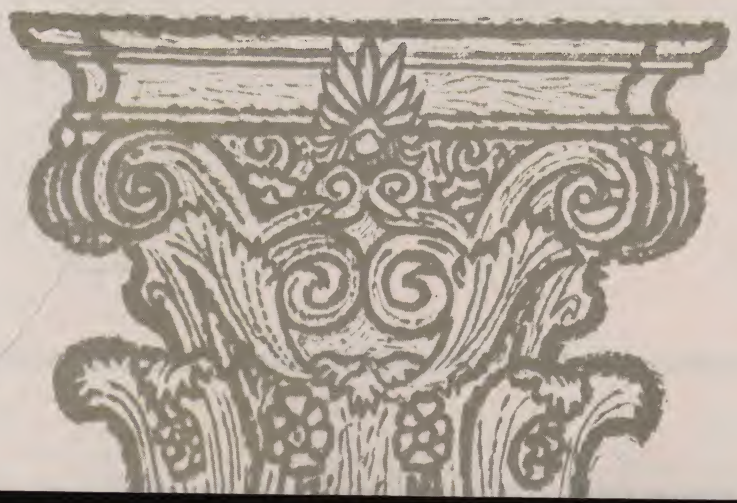
7540 McCormick Blvd., Skokie, Illinois
Chicago Phone: ROgers Park 1-4600

Direct line from Philadelphia to New York:
ENTERPRISE 6268

537 West 35th St , New York 1, N. Y.
Phone: BRyant 9-8528

A.I.A. File No. 15-J

Aluminum in Architecture









KAISER ALUMINUM

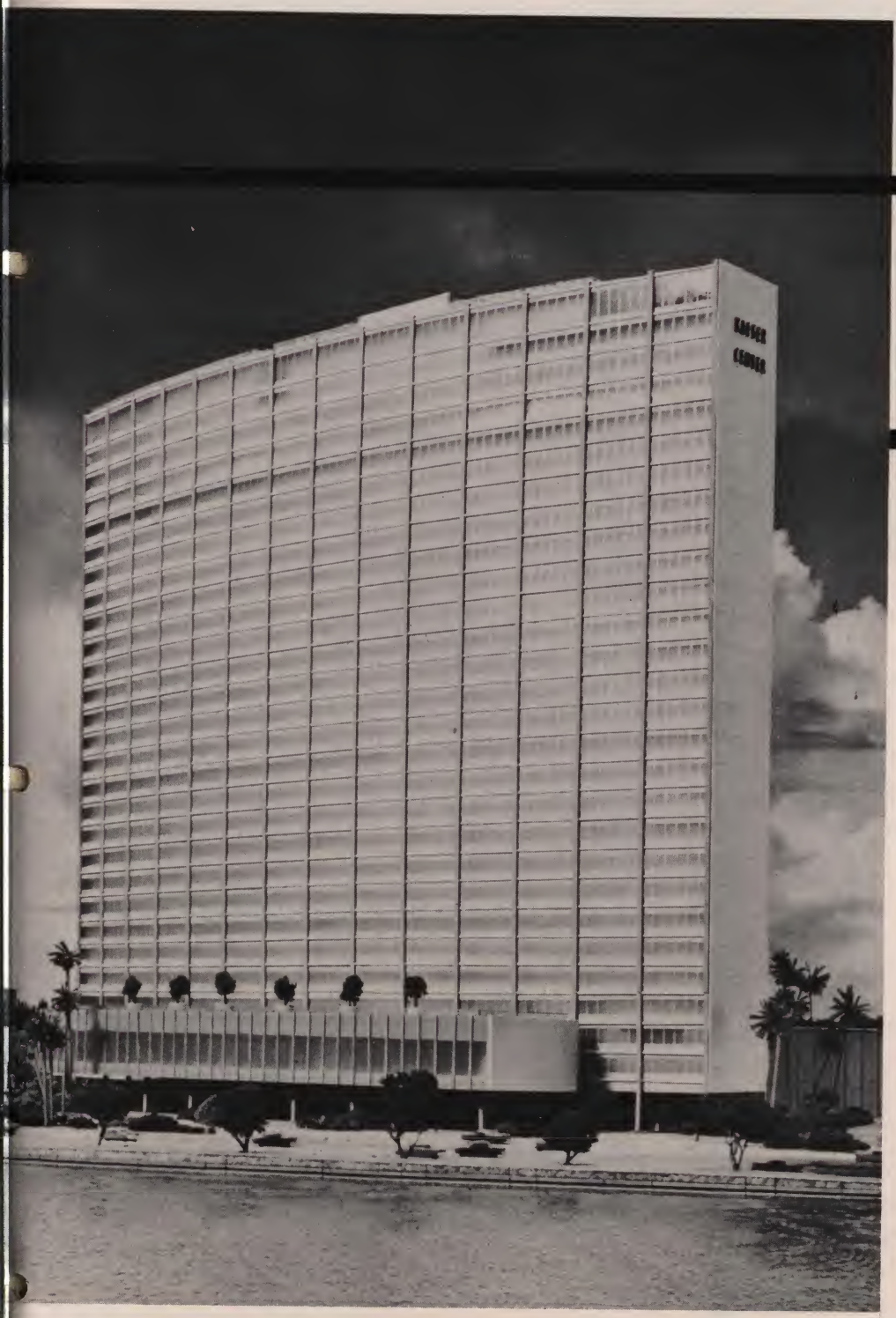
1960

A.I.A. File No. 15-J



WHAT THE ARCHITECT CONCEIVES . . . ALUMINUM ACHIEVES!

Aluminum is one of the most versatile of all building materials. It is inherently attractive, strong, and durable. It has a long record of successful performance under exacting conditions in many architectural applications. It is easily worked and can be formed by a variety of production and fabricating methods to meet the requirements of almost any design. It can be given texture, color, or varying degrees of luster to accentuate form or enhance its natural beauty. Few materials readily available today offer comparable reliability and freedom for creative expression. Kaiser Aluminum architectural representatives are working closely with architects and fabricators throughout the country to help apply the advantages of aluminum to architecture. This service is immediately available without obligation to any architect who is interested in the virtually unlimited design opportunities that aluminum offers.



Kaiser Center, Oakland, California
Architects: Welton Becket, F.A.I.A., & Associates
General contractor: Robert E. McKee, Inc.
Aluminum subcontractor: Kawneer Co.
Aluminum Components:
Mullions—No. 10 architectural extrusions (natural).
Spandrel panels—No. 80 architectural sheet (gold).
Beam covers—No. 10 architectural sheet (natural).
Column covers—No. 30 architectural sheet and extrusions (dark gray).

KAISER ALUMINUM

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The tables on pages 8 and 9 can be used as a guide to selection of alloys for given applications. The alloys listed are those most widely used for architectural applications and are available as "mill standard."



The tables on pages 10 and 11 provide technical information and properties of the various architectural alloys available. These tables will be of help where structural stresses must be taken into consideration.



Technical information on architectural finishes for aluminum is included on pages 17, 18, 19. This material is included as a guide in specifying finish treatments.

USE OF THIS CATALOG . . .

The purpose of this catalog is to help the architect specify aluminum most effectively in his designs.

Alloys—It is important to recognize that there are many types of aluminum alloys, each with specific properties and characteristics. Therefore a guide is provided here to help assure proper alloy selection for given applications. Alloys commonly used architecturally are described so that consideration may be given to the factors that determine proper alloy selection, such as formability, strength, weldability, finishability.

Standard aluminum products are offered in certain alloys because they have been determined generally the most satisfactory for the applications for which they are intended. However, this does not preclude the architect's specifying other alloys to meet special requirements.

Type or form of product to be used—Architectural aluminum is available in a variety of forms. Most products are fabricated of sheet, plate, extrusions, forgings or castings, or a combination of these forms. Data is provided here so that comparisons may be made of one form versus another (formed sheet sections, for example, versus extruded sections).

Color, texture, other finishes—Because appearance is a basic consideration in architectural design, and since there are many excellent finishing treatments for aluminum from which selections may be made, information is included here to help make the proper selection. Information is given on anodic finishes that produce (1) natural-color oxide films, (2) integral-color (gold and grays) oxide films that are lightfast, and (3) dyed-color oxide films. Other finishes that may be specified to produce color—porcelain enamel, paints, lacquers—are discussed, as are chemical conversion coatings (prepaint treatments). Textures may be produced by embossing rolls, chemical etch treatments or by a variety of mechanical means. These, too, are described.

Sizes—Limitations on sizes of aluminum products are imposed by limitations of equipment available to produce basic aluminum forms and to fabricate and process specific products. Selection tables are included here essentially to indicate these limitations and to list standard product availabilities.

Where special problems in specifying arise, or where special size requirements may be necessary, consultation with your Kaiser Aluminum architectural representative is recommended.



Edgemont Clinic, Los Angeles. Architect: Clarence W. Mayhew. General contractor: M. J. Brock & Sons. Aluminum subcontractor: Ador Corporation, Aluminum components: spandrel panels—No. 80 architectural sheet (gold); mullions—6063 extrusions.

WHAT IS ALUMINUM?

Versatile aluminum is the lightest weight, lowest cost, commercially available metal. High-purity aluminum is soft and ductile; strength and hardness are acquired with the addition of alloying elements such as copper, manganese, magnesium, silicon and zinc. Certain alloys are particularly suited for architectural applications. Characteristics and properties of the alloys commonly used architecturally are included on pages 8 to 11.

Aluminum products are either "wrought" or "cast," depending on whether their shape results from mechanically working the metal or from casting molten metal. Special alloys have been developed for each method of manufacture. Wrought alloys are used to produce sheet products, extruded shapes and forgings. Casting alloys are used for the production of ornamental components and the mass production of standard parts.

WHY ALUMINUM?

Many qualities combine to make aluminum an outstanding building material. Here, briefly, are some of its more important advantages in architectural use.

Light Weight—Aluminum is approximately three times lighter than commonly used metals such as steel, copper and brass. One cubic inch weighs approximately one-tenth of a pound.

Strength—Alloys and tempers of aluminum are available to meet almost any strength requirement. Some aluminum alloys exceed the strength of low-carbon steel.

Durability—Aluminum has a high inherent resistance to atmospheric corrosion. An oxide film forms naturally on aluminum surfaces exposed to air, protecting the metal against corrosive attack. This film can be artificially produced and the protection increased by an electrolytic treatment—anodizing.

Minimum Maintenance—Properly installed, aluminum provides years of dependable service with minimum maintenance. Its permanent finishes eliminate costly maintenance painting. Used in wall construction, large aluminum panels reduce the numbers of joints, provide greater weathertightness, and reduce wall deterioration.

Economy—Aluminum sheet gives three times greater area coverage per unit of weight than other commonly used metals of equal thickness. The excellent strength-weight ratio of aluminum eliminates useless weight, reduces dead load, permits lighter structural framing and smaller foundations. It also minimizes freight, handling and installation costs—and permits faster erection and completion.



Federal Reserve Bank, Chicago, Ill.
Architects: Naess & Murphy.
General contractor: George A. Fuller.
Aluminum subcontractor: Flour City Ornamental Iron Co.
Aluminum components: windows, mullions, spandrels—
No. 30 architectural extrusions (gray)

Appearance—The natural appearance of aluminum and variety of surface finishes which may be applied make this metal especially attractive for architectural applications. In addition, unlike many other metals, aluminum does not cause unsightly weathering stains.

Workability—Aluminum sheet responds readily to bending, stamping, roll forming, drawing, embossing, cutting, and spinning operations. It may be extruded, cast and forged. It can be joined by all commonly used methods—welding, adhesives, mechanical fasteners.

Reflectivity—The natural surface of aluminum has high reflectivity to both light and radiant energy (heat). This property, together with very low emissivity, is of outstanding value in applications where thermal insulation and interior heat gain are important.

Thermal Conductivity—On a weight basis, aluminum is the most efficient heat conductor of the common metals, of marked advantage when it is desirable to conduct or dissipate heat rapidly and uniformly.

Electrical Conductivity—Aluminum has the highest electrical conductivity of all known metals, based on weight, and is the leading metal used for transmission lines (initial use 1898). This factor, combined with light weight and low cost, makes aluminum the most economical electrical conductor.

Non-sparking—Aluminum is non-sparking, an important quality when explosion hazards exist.

Non-magnetic—Aluminum is non-magnetic, a property of frequent advantage in the electrical and electronics industries.

DESIGN CONSIDERATIONS AND LIMITATIONS OF USE

Aluminum has certain properties that require the architect's attention in using it most effectively.

Selection of Alloys—The selection of an alloy for a particular application should be based on a careful evaluation of design requirements and the metal's mechanical properties and finishing characteristics. More than one alloy and temper may be used successfully for the same type of application, and different alloys may be used in various parts of an assembly to take advantage of specific properties. If both sheet and extrusions are used together and are to be anodized, appearance match is desirable. (Refer to the anodized aluminum alloy appearance-match table on page 17.)

Standard alloys available for architectural applications are listed in the selection tables on pages 8-11.

Surface Protection—Although aluminum may not always require surface protection, a standard surface treatment is recommended for exterior applications whenever appearance is a factor. The electrolytic process known as anodizing develops a thicker and stronger oxide film than that naturally formed on the surface of aluminum, and thus increases resistance to corrosive attack. Unlike most other protective coatings, particularly those for other metals, this film does not require periodic renewal. Surface protection should be specified where necessary: Maintained surfaces with exterior exposure should be anodized to produce a minimum oxide film thickness of 0.0004″. Unmaintained surfaces, or those subjected to harsh urban environment, should be anodized to produce a minimum film thickness of 0.0008″. Such protective treatment will prolong the life, and particularly the appearance life, of aluminum components, with only a minimum of maintenance being required.

For protection during construction, a coat of water-white methacrylate lacquer should be specified to follow fabrication and/or anodizing. (For additional information on finishes, see pages 17, 18 and 19.)

Corrosive Environments—Aluminum is naturally immune to attack by many acids and corrosive atmospheres. The wide and successful use of aluminum in

containers for many acids, solvents, foods and other products, is evidence that many chemicals have no harmful action. Alkalis and a few strong acids (particularly chlorides and fluorides), however, penetrate the oxide coating and rapidly attack aluminum. Such environments should be avoided.

Contact with Dissimilar Materials—Contact between aluminum and dissimilar metals or absorptive materials in the presence of moisture can cause corrosion of the aluminum. Drainage of surface water from components of dissimilar metals onto aluminum surfaces should be avoided. (See "Protection of Contact Surfaces," page 23, for recommendations.)

Expansion and Contraction—Aluminum has a comparatively high coefficient of expansion (0.000013/degree F/unit of length). In building design, provision should be made for expansion and contraction caused by temperature changes. This is especially important where aluminum meets other materials with different coefficients of expansion.

Welded Joints—Practically all aluminum alloys can be welded. For fusion welding, the inert-gas shielded-arc methods are now used almost exclusively. They offer the advantages of high welding speed and freedom from flux problems. The three methods of resistance welding—spot, seam and flash butt—are also readily adaptable to joining aluminum. Alloy 4043 is considered an excellent choice for welding wire where high-strength welds are required. If an assembly is to be anodized, however, use of 4043 should be limited to concealed joints. In the anodized condition this alloy becomes dark gray, and there may be some discoloration in the heat-affected areas around the weld.

Where joints cannot be inconspicuously located, and appearance of the weld in the anodized condition is important, welding wire of alloys such as 1100, 5154 and 5356 may be used. As a rule, welding wire of an alloy similar in composition to the alloy used in the assembly to be welded results in best appearance-match after anodizing.

Color Anodizing—Anodic oxide films that derive color from the aluminum alloys themselves (architectural alloys No. 20, 30, 40 and 80) are lightfast—hence, most satisfactory for architectural use. Color can also be introduced by dyes. While this is a means of providing color, many coloring agents presently available are subject to noticeable fading under prolonged exposure to sunlight. (See page 17 for anodized-appearance-match information.)

Maintenance Cleaning—Although the original appearance of aluminum will not remain indefinitely without further treatment, the light gray oxide which builds up gradually is not objectionable. Like all exterior surfaces, however, aluminum will accumulate airborne dust and grime, and surface attack is fostered by the continual presence of a layer of dirt. Therefore, exterior aluminum surfaces should be cleaned periodically to preserve their appearance.



Greyhound Bus Terminal, Detroit. Architects: Arrasmith & Tyler; Clair Ditchy, F.A.I.A. Aluminum subcontractor: Construction Specialties, Inc. Aluminum components: sun-control louvers, railings.

ALLOY SELECTION GUIDE

TYPICAL USE	RECOMMENDED ALLOY	COMMENTS
Anodized Sheet Formed Sheet Sheet Metal Plate Trim, Column Covers, Spandrel Panels, Sun Control Devices, Industrial Roofing and Siding, Facings, Ductwork, Gutters, Flashing	No. 10, 10A Architectural Sheet	Clad sheet products having superior anodizing and finishing characteristics. Essentially same mechanical properties as 5005 and 1100 alloys.
	No. 20, 30 and 40 Architectural Sheet	Clad sheet products having special finishing characteristics. Turn to shades of gray when anodized, the shade darkening as the anodizing time increases. No. 40 architectural sheet produces the darkest shades. Good color fastness characteristics and corrosion resistance. Essentially same mechanical properties as 3003 alloy.
	No. 80 Architectural Sheet	A special clad sheet product that becomes gold-colored when anodized. Color is inherent in the alloy; no dyes or other coloring agents are used. Color is uniform, sunfast. Available in embossed patterns only. Essentially same mechanical properties as 3003 alloy.
	1100	Low-strength sheet, accepts high degree of forming. When highest quality finishing characteristics are required specify No. 10A architectural sheet.
	3003	Economical general purpose sheet alloy having excellent formability and good corrosion resistance. Assumes a slight yellowish cast upon anodizing.
	alclad 3004	Best corrosion resistance and strength characteristics of roofing and siding sheet. Available in corrugated, ribbed or V-beam sections and various embossed patterns.
	5005	An economical all-purpose sheet having good corrosion resistance, formability and finishing characteristics. Best-quality sheet for general-purpose work. When anodized, closely matches anodized 6063 extrusions in appearance, and is clearer and brighter than either 3003 or 5052 alloys. When highest quality finishing characteristics are required, specify No. 10 architectural sheet.
	5050	A good finishing alloy having a comparatively clear white appearance after etching and anodizing. Excellent weldability and resistance to corrosion. Stronger than 3003 or 5005 alloys but not as strong as 5052.
	5052	Strongest common alloy in general use. Good formability and excellent resistance to corrosion particularly in seacoast environment. Good weldability but may require careful techniques. Assumes yellowish cast when anodized. With thin anodic coating has fair appearance match with anodized 6061 and 6063 alloy extrusions.
	6061	Principally used for roll-formed structural shapes or extremely high strength sheet applications. Good resistance to corrosion. Very good appearance match with 6061 extrusions but is cloudy in comparison with most other alloys. Sheet is sometimes clad for superior appearance and/or additional corrosion resistance.
	Kaiser Aluminum Duct Sheet	Low-cost sheet for duct systems.
Fasteners Rivets, Nails, Screws, Bolts, etc.	1100	For low-strength rivets and washers. Plain or anodized.
	6061	For high-strength rivets. Plain or anodized.
	2024	Bolts, nuts, screws and nails. Plain or anodized.
	5056	Nails and rivets. Plain or anodized.

TYPICAL USE	RECOMMENDED ALLOY	COMMENTS
Extruded Shapes Copings, Gravel Stops, Fascia, Thresholds, Glazing Members, Handrails, Trim, etc.	6063	Most commonly used extrusion alloy. Good strength. Good appearance match for anodized 5005 sheet.
	6061	Principally used for extruded structural shapes or other applications requiring high strength. When anodized has good appearance match with anodized 6061 alloy sheet but appears cloudy in contrast to most other alloys.
	No. 10 Architectural Extrusions	For ornamental components. High surface quality; free from streaking. Natural aluminum color when anodized. Matches No. 10 and 10A architectural sheet.
	No. 20, 30 Architectural Extrusions	For ornamental components. Turn to shades of gray when anodized, matching No. 20 and 30 architectural sheet, 43 and 356 castings.
Screening And Gratings	alclad 5056	Aluminum wire which is usually drawn and woven into insect screening or wire cloth. Available in wide range of opening dimensions.
	5052	In heavier gauges, used for expanded gratings and walkways. Also used for light-gauge shelving, protective screening and ornamental grillwork. Used for Kaiser Aluminum ShadeScreen, a sun and insect protection device used in the same manner as ordinary wire cloth.
Porcelain Enameled Aluminum	1100, 3003, 6061	Sheet and plate — A broad range of colors may be had in matte, semi-gloss or gloss finish.
	6061, 6062, 6063	Extrusions — A broad range of colors may be had in matte, semi-gloss or gloss finish.
	43, 356	Castings — A broad range of colors may be had in matte, semi-gloss or gloss finish.
Welded Members	3003	Tube and pipe primary welded usage.
	5052	Excellent corrosion resistance, particularly in exposure to salt water. Good weldability but may require careful techniques.
	5083	Structural applications requiring good corrosion resistance and maximum weld strength. Available as plate or extrusions.
	5086	For those structural applications requiring good corrosion resistance as well as high strength after welding. Available in sheet, plate and extrusions.
	6061	Least expensive, most versatile heat-treatable alloy, and the only one that is readily fusion welded. Good resistance to corrosion. Sheet sometimes clad for superior appearance and/or additional corrosion protection.
Castings Ornamental Work and Hardware	43	Hardware, treillage, cast spandrel covers and other ornamental work where low strength is acceptable. Turns gray color upon anodizing to match No. 20 architectural sheet.
	214	Best appearance match with anodized 6063 extrusions. Better strength than 43 alloy castings.
	356	High strength casting alloy. Turns gray when anodized to match No. 30 architectural sheet.

TYPICAL PROPERTIES OF ARCHITECTURAL ALUMINUM ALLOYS

NON-HEAT-TREATABLE ALLOYS

ALLOY	TEMPER	TENSILE PROPERTIES: Yield Strength PSI	TENSILE PROPERTIES: Ultimate Strength PSI	SHEAR: Shearing Strength PSI	ELASTIC MODULUS PSI	MAJOR ALLOYING ELEMENTS: SI. %	CU. %	MG. %	MN. %	CR. %	Weight Lbs./ Cu. In.	FEDERAL OR MILITARY SPECIFICATION	ASTM SPECIFICATION
1100 (sheet, plate)	0	5,000	13,000	9,000	10,000,000	99% ALUMINUM (MINIMUM)					0.098	QQ-A-561 (sheet, plate) MIL-W-7986 (rivets)	B209 (sheet, plate) B316 (rivets)
	H12	15,000	16,000	10,000									
	H14	17,000	18,000	11,000									
	H16	20,000	21,000	12,000									
	H18	22,000	24,000	13,000									
3003 (sheet, plate)	0	6,000	16,000	11,000	10,000,000				1.2		0.099	QQ-A-359 (sheet, plate) WW-T-788 (tube, pipe)	B209 (sheet, plate) B235 (tube) B241 (pipe)
	H12	18,000	19,000	12,000									
	H14	21,000	22,000	14,000									
	H16	25,000	26,000	15,000									
	H18	27,000	29,000	16,000									
alclad 3004 (sheet, plate)	0	10,000	26,000	16,000	10,000,000			1.0	1.2		0.098	none	B209 (sheet, plate)
	H32	25,000	31,000	17,000									
	H34	29,000	35,000	18,000									
	H36	33,000	38,000	20,000									
	H38	36,000	41,000	21,000									
5005 (sheet, plate)	0	6,000	18,000	11,000	10,000,000			0.8			0.098	none	B209 (sheet, plate)
	H12	19,000	20,000	14,000									
	H14	22,000	23,000	14,000									
	H16	25,000	26,000	15,000									
	H18	28,000	29,000	16,000									
	H32	17,000	20,000	14,000									
	H34	20,000	23,000	14,000									
	H36	24,000	26,000	15,000									
	H38	27,000	29,000	16,000									
5050 (sheet, plate)	0	8,000	21,000	15,000	10,000,000			1.4			0.097	none	B209 (sheet, plate)
	H32	21,000	25,000	17,000									
	H34	24,000	28,000	18,000									
	H36	26,000	30,000	19,000									
	H38	29,000	32,000	20,000									
5052 (sheet, plate)	0	13,000	28,000	18,000	10,200,000			2.5		0.25	0.096	QQ-A-318 (sheet, plate)	B209 (sheet, plate)
	H32	28,000	35,000	20,000									
	H34	31,000	38,000	21,000									
	H36	35,000	40,000	23,000									
	H38	37,000	42,000	24,000									
5056 (rod, wire)	0	22,000	42,000	26,000	10,300,000			5.0			0.095	MIL-W-7986 (nails, rivets)	B316 (nails, rivets)
	H18	59,000	63,000	34,000									
	H36	50,000	60,000	32,000									
5083 (plate, extrusions)	0	0.25" to 0.75" 22,000	44,000		10,300,000			4.4	0.7		0.096	MIL-A-17358 (sheet, plate) MIL-A-19005 (extrusions)	B209 (sheet, plate)
	H113	0.751" to 2" 20,000 0.25" to 2" 33,000	41,000 46,000										
5086 (sheet only)	0	17,000	38,000	23,000	10,300,000			4.0	0.4		0.096	MIL-A-19070 (sheet, plate)	B209 (sheet, plate)
	H32	30,000	42,000										
	H34	37,000	47,000	27,000									
	H112	19,000	39,000										

HEAT-TREATABLE ALLOYS

ALLOY	TEMPER	TENSILE PROPERTIES: Yield Strength PSI	TENSILE PROPERTIES: Ultimate Strength PSI	SHEAR: Shearing Strength PSI	ELASTIC MODULUS PSI	MAJOR ALLOYING ELEMENTS: SI. %	CU. %	MG. %	MN. %	CR. %	Weight Lbs./ Cu. In.	FEDERAL OR MILITARY SPECIFICATION	ASTM SPECIFICATION
6061 (sheet, plate, extrusions)	0 T4 T6	8,000 21,000 40,000	18,000 35,000 45,000	12,000 24,000 30,000	10,000,000	0.6	0.25	1.0		0.25	0.098	QQ-A-327 (sheet, plate) QQ-A-270 (extrusions) MIL-R-1150 (rivets)	B209 (sheet, plate) B211 (rod and bar) B221 (extrusions) B308 (extrusions) B316 (rivets)
6062 (extrusions)	0 T4 T6	8,000 21,000 40,000	18,000 35,000 45,000	12,000 24,000 30,000	10,000,000	0.6		1.0			0.098	QQ-A-270 (extrusions)	B221 (extrusions) B308 (structural shapes)
6063 (extrusions, rod bar, pipe, tube)	0 T42 T5 T6	7,000 13,000 21,000 31,000	13,000 22,000 27,000 35,000	10,000 14,000 17,000 22,000	10,000,000	0.4		0.7			0.098	QQ-A-274 (extrusions)	B221 (extrusions)
2024 (rod, wire)	0 T36 T4	11,000 57,000 47,000	27,000 72,000 68,000	18,000 42,000 41,000	10,600,000		4.2	1.5			0.101	QQ-A-268 (bolts, nuts, nails)	B211 (bolts, nuts, nails)

CASTING ALLOYS

ALLOY	TEMPER	TENSILE PROPERTIES: Yield Strength PSI	TENSILE PROPERTIES: Ultimate Strength PSI	SHEAR: Shearing Strength PSI	ELASTIC MODULUS PSI	MAJOR ALLOYING ELEMENTS: SI. %	CU. %	MG. %	MN. %	CR. %	Weight Lbs./ Cu. In.	FEDERAL OR MILITARY SPECIFICATION	ASTM SPECIFICATION
43	SAND CAST PERMANENT MOLD DIE CAST	8,000 9,000 16,000	19,000 23,000 30,000	14,000 16,000 19,000	10,300,000	5.0					0.097	QQ-A-601 (sand) QQ-A-596 (permanent mold) QQ-A-591 (die) MIL-A-15153 (die)	B26 (sand) B108 (permanent mold)
214	SAND CAST PERMANENT MOLD	12,000 16,000	25,000 27,000	20,000 22,000				3.8			0.096	QQ-A-601 (sand)	B26 (sand) B108 (permanent mold)
356	SAND CAST T6 PERMANENT MOLD	24,000 27,000	33,000 40,000	26,000 32,000	10,500,000	7.0		0.3			0.097	QQ-A-601 (sand) QQ-A-596 (permanent mold)	B26 (sand) B108 (permanent mold)



KA 101—Stucco

KA 102—Ribbed

KA 103—Diamond

KA 104—Square

Northern Natural Gas Company, Omaha. Architects: John Latenser & Sons. General contractor: Peter Kiewit Sons Co. Aluminum subcontractor: Flour City Ornamental Iron Co. Aluminum components: spandrel panels—No. 20 architectural sheet (gray) mullions—6063 extrusions.

SHEET PRODUCTS

Kaiser Aluminum standard sheet products are produced in a variety of alloys and tempers to meet a wide range of requirements. (Industry standards define as sheet rolled metal from 0.006″ to 0.250″ in thickness.) Flat sheet is available up to 80″ in width, in standard lengths up to 288″. Consult your Kaiser Aluminum architectural representative for more detailed information on standard sheet products.

KA 105—Wood Grain

KA 106—Leather Grain

KA 107—Fluted

KA 108—Pebble Grain

SPECIALTY SHEET PRODUCTS

ARCHITECTURAL SHEET

Some aluminum sheet products for architectural applications are produced as "clad" products. They are actually composite materials produced by placing relatively thin slabs of special alloy on each side of an ingot and pressure welding the "sandwich" together by a hot rolling operation.

Clad products are produced for their superior finishing qualities or appearance after anodizing (freedom from structural streaking) or, in the case of high-purity alloy cladding, to increase corrosion resistance.

Mechanical finishes for clad sheet products must be very light in order to avoid cutting through the cladding and exposing the core metal, which usually is of inferior anodizing quality.

No. 10 and 10A Architectural Sheets—These are specialty sheets clad on both sides and especially suited for natural aluminum-color anodized finishes. A chemical etch or light mechanical preparation of the surface performed prior to anodizing assures a surface of uniform quality and appearance, substantially free from structural streaks. These sheets have high corrosion resistance, good formability characteristics, and are well suited for interior and exterior architectural applications.

No. 20, 30 and 40 Architectural Sheets—These specialty sheet products are clad on both sides and develop a uniform gray-colored finish of high quality when given standard anodizing (a dye is not introduced in the anodizing process). The color is virtually lightfast under prolonged exposure to sunlight.

The primary distinction between the three types of sheet is the range of gray shades obtainable, from light gray in No. 20 to dark gray in No. 40. All have high corrosion resistance, good formability characteristics, and are especially intended for exterior and interior architectural applications.

No. 80 Architectural Sheet—This sheet is clad with an alloy that produces a uniform gold color when anodized by standard methods. No dyes or other coloring agents are used. No. 80 anodized architectural sheets have the same corrosion resistance, strength and formability characteristics as the natural and gray-colored sheets, are practical for either interior or exterior use. The anodized color produced is sunfast, unaffected by weathering. These sheets are available embossed only, in all standard embossed patterns.

SELECTION DATA—ARCHITECTURAL SHEET

SHEET	PROPERTIES (similar to)	TEMPER	THICKNESS (in.)		MAXIMUM SIZE (in.)	
			MIN.	MAX.	WIDTH†	LENGTH*
No. 10	5005	0, H12, H14, H16, H18	0.019	0.250	60	180
No. 10A	1100					
No. 20	3003	0, H111, H12, H14, H16, H18	0.051	0.250	72	288
No. 30	3003					
No. 40	3003					
No. 80	3003	H114, H134, H154, H174	0.060	0.125	60	288

†depending on temper and embossed pattern availability
*depending on thickness

EMBOSSED SHEET

Embossed sheet products have a pattern impressed on one or both sides. Single-side embossing leaves the opposite side smooth. The two sides of the sheet differ slightly in appearance and design effect where both sides are embossed. Embossed sheet offers increased stiffness over standard flat sheet and provides a mar-resistant finish which diffuses incident light.

Standard depth of embossing impression is 0.010″; for light embossing the impression depth is 0.005″. Embossed sheet is available in thicknesses 0.010″ to 0.064″, widths up to 60″, lengths as required.

Double embossing can be specified to meet specular reflection requirements, such as for military air-field construction. The process superimposes one embossed pattern over another, creating a surface that provides a maximum of light diffusion.

Kaiser Aluminum embossed sheets are used for doors, partitions, spandrel panels, column covers, and other decorative applications. They are available in alloys 1100, 3003, 5050, 5052 and in No. 10, 10A, 20, 30, 40 and 80 architectural sheets. Typical patterns are shown here (actual size) with appropriate specification numbers.

SATIN-TEX SHEET

A satin-finished surface called Satin-Tex is available for Kaiser Aluminum sheet. This is a controlled belt-sanding operation that produces variations in texture according to the grit size used. The sheet is supplied in all common alloys. The uniform and pleasing appearance of Satin-Tex sheet is particularly suited to decorative applications.

Satin-Tex sheet is available up to 48″ wide, 144″ long. Thicknesses are from a minimum of 0.019″ to a maximum of 0.250″. Standard texture gradations are coarse, medium and fine.

TREAD PLATE

Kaiser Aluminum tread plate is a skid-resistant floor surface covering. It has a raised diamond embossed surface. It is available in alloys 6061, 5083 and 5086. Widths vary from 24″ to 60″, lengths from 72″ to 240″. Thicknesses are from a minimum of 0.100″ to a maximum of 0.500″.



SOLID EXTRUDED SHAPE
Any extruded shape other than a hollow or semi-hollow extruded shape.

SEMI-HOLLOW EXTRUDED SHAPE
An extruded shape, any part of whose cross section partially encloses a void.

CLASS I HOLLOW EXTRUDED SHAPE
A hollow extruded shape whose void is round and 1" or more in diameter, and whose weight is equally distributed on opposite sides of two or more equally spaced axes.

CLASS II HOLLOW EXTRUDED SHAPE
Any hollow extruded shape other than Class I, having a single void and not exceeding a 5 inch circumscribing circle diameter in size.

CLASS III HOLLOW EXTRUDED SHAPE
Any hollow extruded shape other than Class I or Class II.

ALUMINUM EXTRUSIONS

The extrusion process is one in which a hydraulically operated ram exerts pressure against a heated aluminum billet to force metal through openings in a precision-made die. The metal flow occurring during extrusion creates a fine-grained wrought product conforming to the configuration and dimensions of the die openings within close tolerances, and possessing uniformly high mechanical properties.

The versatility inherent in the extrusion process and in the design of extrusion dies makes it possible to create and produce an infinite variety of shapes to satisfy exacting functional or aesthetic requirements. A single aluminum extrusion can replace a complex assembly of several roll-formed or brake-formed shapes joined by welding or riveting.

Aluminum extrusions are widely used in architecture, for door and window components; for spandrels, mullions and framing grid members in curtain walls; for structurals; and for a broad assortment of functional and ornamental trim sections. They are available in practical lengths of from 3 to 30 feet, and die costs are relatively low.

Extruded shapes are classified, according to their configurations, as solids, semi-hollows, and three classes of hollows. Hollow shapes are more expensive than solid sections because of the greater difficulty in producing the hollow extrusions. Further, die cost and the minimum allowable wall thickness of an extrusion increase as the over-all cross-section of the extrusion increases. Hence, while complex extrusions up to 24" wide can be produced, simpler interlocking sections 6" to 8" wide will very likely be more economical for most applications.

Kaiser Aluminum markets a complete line of standard architectural extrusions available as stock warehouse items from its distributors. These sections are shown briefly on pages 19 and 20 and in full detail in the Kaiser Aluminum publications, "Copings and Gravel Stops," A.I.A. 15-L, "Thresholds and Window Sills," A.I.A. 14-B, and "Ornamental Extrusions," A.I.A. 15-L.

Consult your Kaiser Aluminum architectural representative for complete information on both standard and custom-designed extrusions and for reliable counsel on the general use of aluminum in architecture.



IBM Manufacturing and Educational Facility, Rochester, Minn. Architects: Eero Saarinen, F.A.I.A., and Associates. General contractor: Johnson, Drake & Piper. Aluminum subcontractor :Flour City Ornamental Iron Co. Aluminum components: Extruded aluminum mullions, porcelain-enamel aluminum spandrel panels.

ALUMINUM CURTAIN WALLS

Interest in the use of curtain walls for buildings has increased greatly over the past decade, the versatility and beauty of aluminum being major factors. The natural appearance of aluminum, the lustrous beauty of its surface and the variety of finishes to which it responds make it a metal especially suited for this use, where appearance is of greatest importance. Curtain walls have been built for many years with traditional materials—today's new materials offer exciting new possibilities in design achievement, construction economy and speed.

Curtain walls, by definition, are nonload-bearing. The construction has several economic and practical advantages. Because of the lightness of the aluminum curtain wall, the structural framing of the outer walls can be lighter, less costly. These walls are thin, yet highly resistant to the passage of heat; they also provide increased floor space.

Prefabricated units, shop or field assembled, can be delivered to the site ready for erection from inside the building, thereby eliminating the high costs of scaffolding. A further advantage is that buildings can be closed in more readily.

Prefabricated insulated sandwich panels combine the heat-obstructing qualities of standard insulations with the heat-reflective qualities of aluminum to provide a maximum of insulation in a minimum of space.

Light weight simplifies shop handling, reduces shipping costs, simplifies erection. High-strength alloys permit aluminum to meet any strength requirements that might arise.

Aluminum curtain walls offer exceptional value in performance and service life. The high corrosion resistance of the metal reduces maintenance problems to a minimum, assures a long service life for the building exterior.



Edgemont Clinic, Los Angeles. Architect: Clarence W. Mayhew. General contractor: M. J. Brock & Sons. Aluminum subcontractor: Ador Corporation, Aluminum components: spandrel panels No.80 architectural sheet (gold); mullions—6063 extrusions.

There are four general types of curtain wall:

1. The grid system, comprising vertical and horizontal framing of equal emphasis;
2. The mullion type, which emphasizes the vertical supports, with less-conspicuous or no horizontal elements;
3. The spandrel type, which produces a pronounced horizontal-band or horizontal-strip appearance;
4. The sheath type, which minimizes panel direction and structural elements and presents a flat unbroken surface of panel units.

The design of a good curtain-wall system provides for the easy removal of panels or windows in the event of damage.

Where insulated panels are used, they should be designed to satisfy the thermal requirements of the wall, as well as for vapor and sound control.

Provision must be made for washing of windows. Operative windows in the curtain wall will satisfactorily fulfill this requirement. A moving platform which operates on the face of the building can be used for curtain walls with fixed windows.

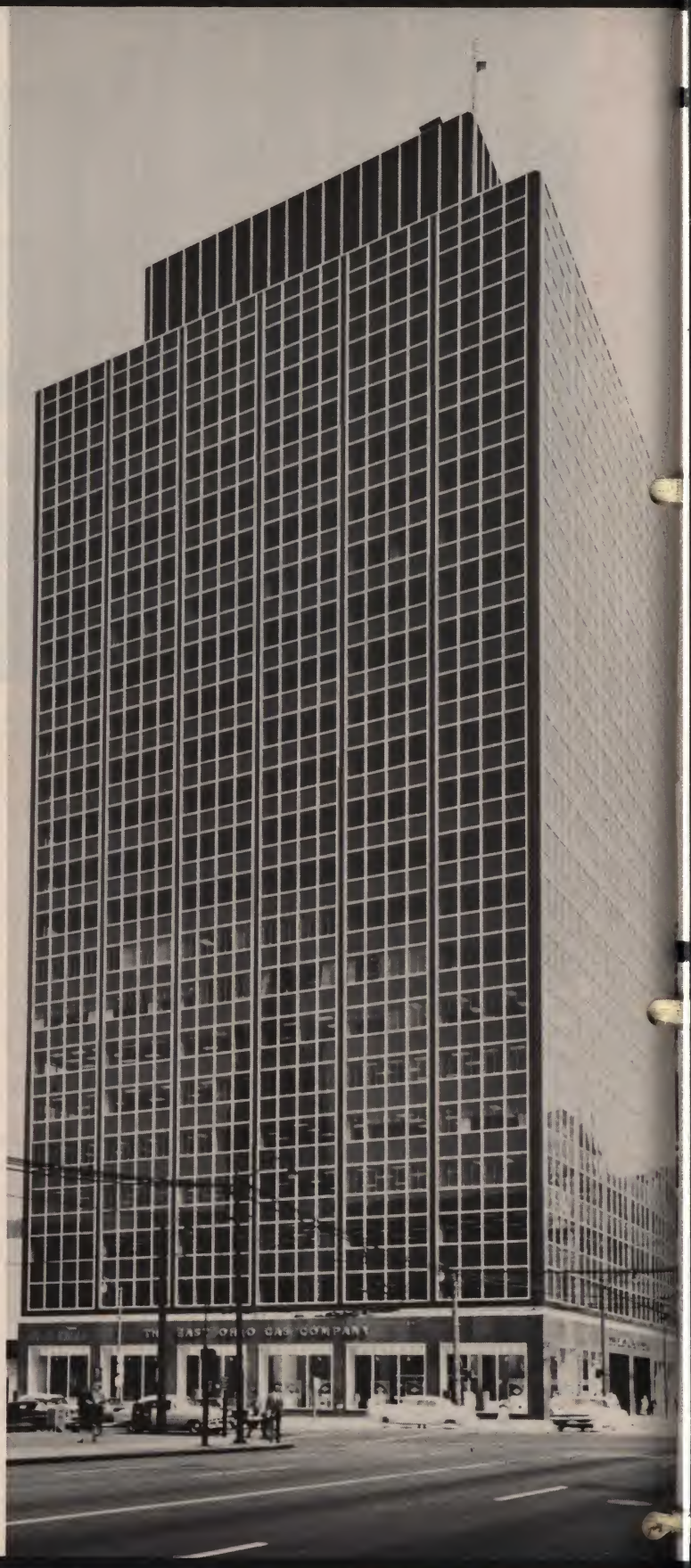
The use of curtain wall should be carefully planned, with allowances made for expansion, contraction and normal construction tolerance. Attachment components should be adjustable where possible, in three directions. Anchor locations should be easily reached, too, well away from slabs or beams. Of primary importance when designing in aluminum is the fact that aluminum components will expand approximately ⅛″ in 10′ in a temperature range of 100°F.

Sound control is also important in curtain-wall design. Noise can be transmitted from room to room or from floor to floor if closures are not carefully made between columns and wall or between floor slab or spandrel beam and wall. A certain amount of vibration noise may be set up if too-thin panels are used. Air movement over weepholes, joints, other small openings and through open-ended hollow mullions are noise factors to be considered.

Three forms of aluminum are used in the construction of curtain walls—sheet, extrusions and castings. The choice of one in preference to another, or their combination, depends mainly upon the size of the building, the architectural effect desired, fabrication considerations, and economy.

All three are available in a number of alloys, making it possible for the architect to select alloys having the proper strength, temper and finishing characteristics required.

Every type of finish compatible to aluminum can be considered practical for use in curtain-wall construction, giving the architect wide freedom in decorative design.



East Ohio Gas Co., Cleveland. Architects: Emery Roth & Sons. General contractor: Tishman Realty & Construction Co. Aluminum subcontractor: Kawneer Co. Aluminum components: No. 20 (gray) architectural-alloy curtain-wall components.

APPEARANCE MATCHING OF ANODIZED ALUMINUM ALLOYS

FINISH LIMITATIONS

This table lists many aluminum alloys in general use in architectural applications, shows approximate appearance matches obtainable through anodizing.

Color anodizing—When colored finishes are specified, exact appearance match should not be expected. Alloy composition tolerances and the many processing variables can affect final color. While color variation may be no greater than that in other building construction materials, greatest satisfaction results when large expanses of color are avoided and colored panels are separated by introduction of another color or by architectural breaks or changes of plane.

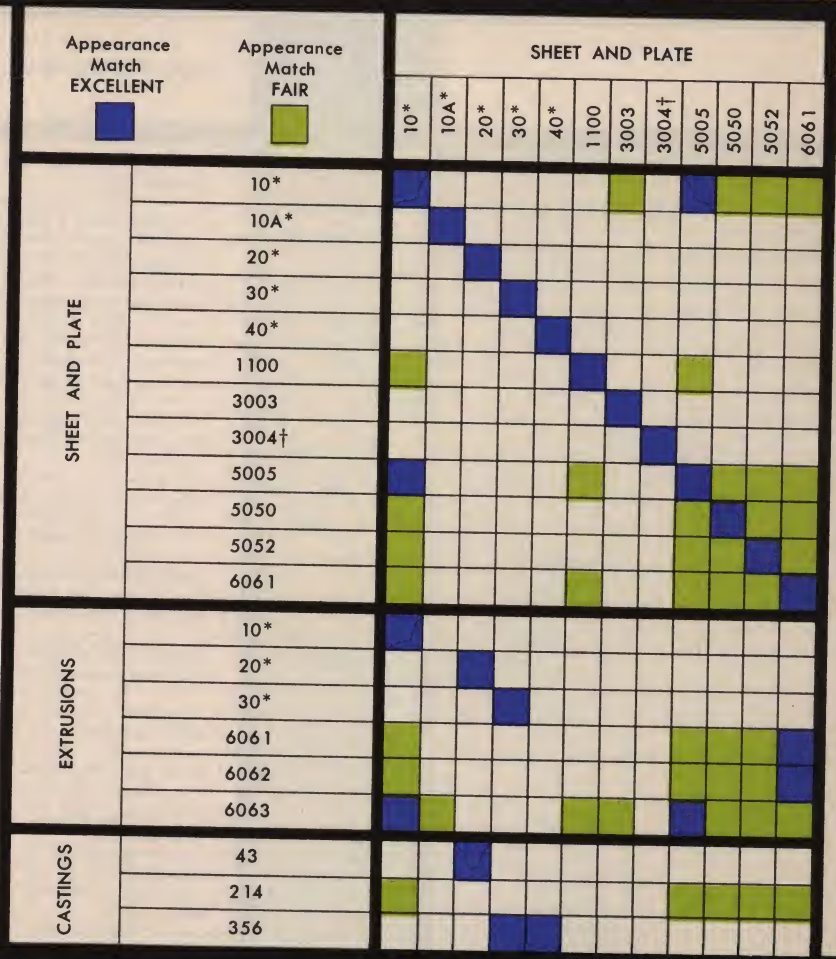
Alloys—Architectural sheet and extrusions with corresponding numbers provide best possible anodized appearance match. Otherwise, 5005 alloy sheet and 6063 alloy extrusions provide a generally satisfactory match. 3003 alloy sheet assumes a yellowish cast when anodized, the condition being more noticeable with longer anodizing times. 6061 alloy extrusions in the "as extruded" or mill-finish condition are usually somewhat dingy in appearance. If appearance is important, buffing or other surface finishing should be specified. Anodizing produces an inherent cloudy appearance.

Sheet thickness—Aluminum sheet in heavier thicknesses has a general tendency toward development of structural streaking, which may be visually objectionable in architectural applications. Architectural sheet is substantially free of this tendency and should be specified when best possible finished appearance is desired.

Clad sheet—Mechanical finishes must be light to avoid exposure of core metal, which is usually inferior to cladding in finishing characteristics.

†alclad

*architectural alloys; see page 8 for alloy information



FINISHES FOR ARCHITECTURAL ALUMINUM

Aluminum can be given texture, color, varying degrees of luster, extra surface hardness, increased resistance to abrasion, added durability through one or a combination of the finishing treatments described below. Your Kaiser Aluminum architectural representative is ready to assist you in developing proper specifications for desired surface finishes.

Interesting effects can be achieved by combining different finishes, different textures, different colors, and by masking certain areas. The architect's own imagination and ingenuity need be the only guide.

MECHANICAL FINISHES

Several mechanical processes can be used to alter the surface appearance of aluminum. A considerable range of textures is possible, depending upon the coarseness of the finishing process selected.

Grinding, belt sanding, polishing, buffing—remove or minimize surface imperfections and abrasions, create lustrous surfaces.

Fine abrasives—such as oil-lubricated abrasive cloths, stainless-steel wool, oil and emery powder, stainless-steel wool lubricated with a neutral soap solution—can be used to produce satin finishes.

Scratch brushing—produces a finish with rotating wire brushes. Coarse brushes create a scratch brush finish; fine brushes create a satin finish.

Sand blasting—quickly and inexpensively produces surfaces that are nonreflective and gray in appearance. Because surfaces are susceptible to handling marks, anodizing is recommended following sand blasting. Sand blasting is used occasionally as prepaint treatment.

The table below can be used as a guide in specifying finish treatments for aluminum. The description of each type of finish provides the architect with a general idea of its appearance and quality. Samples of various finishes are available upon request.

ARCHITECTURAL ALUMINUM FINISHES

TYPE		SPECIFICATION CODE	DESCRIPTION
Natural Finish	As Fabricated	NF	No special finish is applied. Surface is as rolled, extruded, or cast.
Mechanical finishes (See Note 3)	Highly lustrous surface	M-1	Polished (120 to 320 grit). A lustrous finish achieved by preliminary belt polishing with grits coarser than 320, and final polishing with a 320 grit belt used with proper lubrication. The polished surface must be carefully cleaned to maintain its luster.
		M-2	Polished (120 to 320 grit) and buffed. Maximum surface luster, suitable for decorative purposes, is obtained by buffing the M-1 finish with a very fine aluminum buffing compound such as tripoli or the various rouges.
	Soft textured finish of parallel scratch lines	M-3	Satin 120—140 grit (Coarse). Satin finishes have a texture and luster of less reflectivity than buffed finishes. They result from fine parallel scratch lines being formed on a surface.
		M-4	Satin 140—180 grit (Medium).
		M-5	Satin 180—220 grit (Fine).
		M-6	Hand rubbed with steel wool. A satin finish applied by rubbing first with coarse steel wool or abrasive paper to remove die lines and scratches and finally with #0 stainless steel wool lubricated with neutral soap.
		M-7	Brushed with wire wheel. Preferably applied over a fine or medium sand blast, this finish has a smooth matte appearance.
		M-8	Satin finish produced with a rotary wheel having individual strips of coated abrasive cloth, used especially for finishing contoured surfaces.
	Pleasing rough texture used primarily for exterior applications (See Note 5)	M-9	Sand blast 16-20 mesh (coarse matte finish). Minimum metal thickness normally ⅛".
		M-10	Sand-blast finish 40-50 mesh (medium matte finish). Minimum metal thickness normally ⅛".
		M-11	Sand-blast finish 100-200 mesh (fine matte finish). Thin sheet may warp slightly during blasting, but warping can generally be avoided by uniform blasting on both sides of the material.
		M-12	Shot blast. The appearance of this finish is dependent on the size and type of shot and the velocity.
Chemical finish (See Notes 1 and 3)		C-1	Chemical etch. (Degree of etch controlled by time and solution, either sodium hydroxide or sodium hydroxide and sodium fluoride)
Chemical coatings		CC-1	Used for exterior protection and decoration as well as pre-paint treatment, such as: Alodine by American Chemical Paint Co., or Bonderite by Parker Rust Proof.
Anodic coatings (See Notes 1, 2 and 4)		A-1	Clear finish. 30 minute anodizing time in 15% sulphuric acid bath. Average coating thickness: 0.0004"—Average coating weight: 17 mg/sq. in.
		A-2	Clear finish. 60 minute anodizing time in 15% sulphuric acid bath. Average coating thickness: 0.0008"—Average coating weight: 35 mg/sq. in.
Applied coatings		AP-1	Paints, lacquers or enamels applied to any properly prepared surface.
		AP-2	Porcelain enamel.
Special finishes		S	Any finishes not covered above, such as hammered mechanical finish.

NOTES:

1. For protection during construction, it is recommended that these finishes be given a coat of water-white methacrylate lacquer after fabrication.
2. For maintained exterior applications a minimum anodic film thickness of 0.0004" is recommended. For severe industrial, marine, or high humidity environments, and for unmaintained exterior surfaces, a minimum anodic film thickness of 0.0008" is recommended.
3. These finishes eliminate the variations of the natural finish. They may be used as final finishes, with a suitable temporary protection, or as preliminary surface treatments for subsequent protective or decorative finishes.
4. Following are suggested tests for anodic coatings: (1) thickness measurements in accordance with ASTM B244-49T; (2) coating weight measurements in accordance with ASTM B137-45; (3) sealing test in accordance with ASTM B136-45.
5. Sand-blast finishes turn gray when anodized unless aluminum oxide grit is used instead of sand, or an etch treatment precedes anodizing.

CHEMICAL ETCH FINISHES

Sparkling, frosted surfaces or bright, lightly etched surfaces are produced by alkaline or acid reagents. The etching treatments are usually followed by immersion of the metal in a solution of equal parts, by weight, of nitric acid and water. Chemical etches can be used to reflect light diffusely, or for ornamentation.

To protect chemically etched finishes prior to and during construction, it is recommended that they be given two coats of water-white methacrylate lacquer.

CHEMICAL CONVERSION COATINGS

Chemicals can be used to produce reactions that change aluminum surfaces to compounds of aluminum—usually oxides, phosphates, fluorides or chromates of aluminum. Chromate films provide additional corrosion resistance. Chemical conversion coatings provide an excellent base for painting.

ANODIC (ELECTROCHEMICAL) FINISHES

Anodizing produces a film of hard aluminum oxide which enhances surface appearance, increases resistance to corrosion or abrasion. This film provides an excellent protective coating for etched or mechanically finished surfaces, accurately reproduces the texture of the underlying surface.

Anodizing is an electrolytic process whereby a coating of aluminum oxide is created on an aluminum surface. The material to be anodized is placed in an electrolyte solution, usually with a sulfuric acid base, and an electric current is passed through the solution. The process gets its name from the fact that the material to be coated functions as an anode, the positive terminal in an electrolytic action. The current breaks down the acid solution, releasing free oxygen, which combines electrolytically with the aluminum to form a surface oxide. Anodizing, in effect, is an accelerated oxidation process. The thickness of the anodic coating depends upon the time in the anodizing bath.

A colorfast range of shades of gray and gold can be produced for architectural sheet and extrusions, as discussed on page 13. For interior applications dyed anodic oxide films can provide a variety of lustrous colors. For more comprehensive information on color anodizing, the Kaiser Aluminum architectural representative should be consulted. Samples of colorfast gray and gold anodized aluminum are available to aid in specifying. Consistent uniformity of color in the anodizing of Kaiser Aluminum architectural alloys may be assured by means of the photovolt reflectometer. This is a photosensitive instrument that registers differences in color intensity by detecting differences in the amount of reflection from a surface lighted by a controlled light source, in comparison with light reflected from a standard white surface.

Highly accurate readings are possible, far beyond the perception of the eye. Samples should be continually checked during the anodizing process to make certain that color values are constant.

Anodic finishes should be protected prior to and during construction with a double coat of water-white methacrylate lacquer.

PAINT, LACQUER, ENAMEL FINISHES

A limitless variety of colors are available for painting, lacquering or enameling aluminum. The types of finishes and material should be selected in cooperation with the paint manufacturer. Excellent results can be obtained with baked enamel finishes.

PORCELAIN ENAMELED FINISH

Few materials available today offer the architect as many design possibilities as colorful, durable porcelain enameled aluminum. Porcelain enameled aluminum, in flat or formed sheet or in extruded shapes, meets the increasing demand for colorful exterior finishes, offers a wide range of colors and textures, from high gloss to full matte finish. Colors are durable—won't peel, won't fade; they retain their uniformity for years.

Porcelain enamel on aluminum has a hard, impervious, glassy surface fused to the metal base. The finish resists the most severe weather conditions, salt air, industrial atmospheres and extremes of temperature.

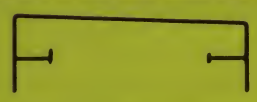
Kaiser Aluminum produces a number of semi-fabricated products for use in architectural applications. These are covered here briefly.

OTHER KAISER ALUMINUM ARCHITECTURAL PRODUCTS

STANDARD ARCHITECTURAL EXTRUSIONS

Comprehensive information on these standard extrusions will be found in the Kaiser Aluminum publications, "Copings and Gravel Stops," A.I.A. 15-L, "Thresholds and Window Sills," A.I.A. 14-B, and "Ornamental Extrusions," A.I.A. 15-L.

Copings—extruded shapes for preventing weather damage to walls in flat-roof construction in widths 14" and 9½", for 12" and 8" walls. Kaiser Aluminum copings are provided with necessary accessories for firm anchoring and watertight joints. Alloy 6063-T42, standard lengths 9'-10".



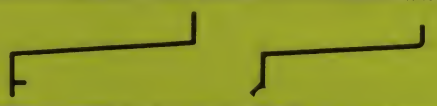
Gravel stops—three types of extruded shapes, provide a flush line at the roof edge to meet the needs of contemporary architecture. They are fabricated in 4" widths and a selection of face dimensions. Accessories are provided for proper watertight installation. Alloy 6063-T42, standard lengths 9'-11½".



Thresholds—extruded shapes to meet a wide variety of doorway floor conditions. Widths from 1½" to 7½". Alloy 6063-T5, standard lengths 16'-3".



Window sills—extruded shapes for use chiefly with masonry walls. Available in widths from 2⅛" to 8¼". Usable with aluminum, steel or wood windows. Alloy 6063-T42, standard lengths 20'-0".



Facing system—seven basic interlocking components adaptable to any type of wall, any length of wall, interior or exterior. Graceful design alternating shallow channels (¾" wide) with raised flats (1½" wide). Provided with fastening accessories. Alloy 6063-T42, standard lengths 16'-0".



Handrails—ornamental extruded sections for wall or balustrade mounting. Six standard sections. Alloy 6063-T5, standard lengths 20'-0".



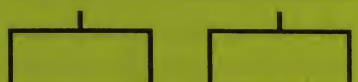
Rod and bar—extruded sections for many architectural uses. Rod diameters ½" to 1"; square bar from ⅜" to 1½"; rectangular bar thicknesses ⅛" to 1", widths ½" to 3". Alloy 6063-T5, standard lengths 16'-0".



Pipe and square tube—extruded sections for handrails and other architectural uses. Pipe nominal diameters ⅜" to 4". Alloy 6063-T6, standard lengths 20'-0". Square tube ¾" to 2". Alloy 6063-T5, standard lengths 21'-1".



Rectangular and finned tube—extruded sections for door jambs, window mullions, other architectural uses. Rectangular tube thicknesses ½" to 2", widths 1" to 5"; finned tube 1¾x4" only, with one or two ½" fins. Alloy 6063-T5, standard lengths 21'-1".



Architectural shapes—sharp-corner angles, channels and tees, extruded shapes for many architectural applications. Angle legs up to 3½", channel webs up to 5", tees up to 1¼" depth. Alloy 6063-T5, standard lengths 16'-0" (some channels 20'-0").



Structural shapes—angles, channels, beams, tees and zees, extruded shapes for many architectural and structural applications. Angle legs up to 4", channel webs up to 8", I-beam webs up to 6", H beams 4x4", tees to 2" depth, zees to 3" depth. Alloy 6061-T6, standard lengths to 25'-0".



Other products include Kaiser Aluminum domes, domed shells employing a combination of geodesic and stressed-skin principles; ShadeScreen, a louvered screening that effectively blocks out the hottest rays of the sun as well as insects; electrical conductor, bus bar and conduit in all sizes for all electrical uses; and industrial roofing and siding.



Flint Medical Arts Building, Flint, Michigan. Architect: Brice McMillen, A.I.A. General contractor: Sorensen-Gross Construction Co. Aluminum subcontractor: Koert's Glass & Paint Co. Aluminum components: Kaiser Aluminum standard architectural extrusions

Kaiser Aluminum Dome, American National Exhibition Buildings, Sokolniki Park, Moscow, Russia. Architects: Welton Becket, F.A.I.A., & Associates. Aluminum dome subcontractor: Lydick Roofing Co.



(Note to Specification Writer: A separate section is recommended for all architectural aluminum work, instead of including it under several other sections. This will make a better specification, conducive to more accurate bidding by sub-contractors. Other metalwork sections should refer to this section.)

SUGGESTED SPECIFICATIONS

ARCHITECTURAL ALUMINUM SECTION

-01 GENERAL CONDITIONS

"The General Conditions of the Contract for the Construction of Buildings," (*) standard form of the American Institute of Architects, current edition, are part of this specification.
**(And "Supplementary General Conditions")*

-02 SCOPE OF WORK

A. Work Included—Furnish all labor, materials and equipment to complete the fabrication and erection of all aluminum work shown on the drawings, or herein specified as follows:
(Aluminum items being used should be listed here by product name, type, or part number.)
Miscellaneous fasteners, anchors, brackets, straps, plates and inserts required in connection with the work of this section.
Protective coatings.
Caulking, grouting and sealing required in connection with the work of this section.
Final cleaning.

B. Work Not Included—*(All items to be excluded from this section should be listed here together with section under which they are specified.)*

-03 MATERIALS

All aluminum alloys specified herein shall be as produced by Kaiser Aluminum & Chemical Corporation. *(The selection of an aluminum alloy is important and depends largely on the form in which it will be used, such as sheet and plate, extrusions or castings, as well as the mechanical properties, color matching and finishing characteristics desired. Your Kaiser Aluminum Architectural representative will gladly assist you in the selection of the proper alloy, or you may refer to the Table on "Kaiser Aluminum Architectural Alloys," pages 6 and 7.)*

A. Sheet Aluminum—*(List applications and specify alloy, thickness and temper.)*

B. Extruded Aluminum—*(List applications and specify alloy, thickness and temper.)*

C. Cast Aluminum—*(List application and specify alloy and minimum thickness.)*

D. Fasteners

1. Aluminum Screw Machine Products—*(Specify alloy.)*
2. Aluminum Nuts—*(Specify alloy.)*
3. Aluminum Rivets—*(Specify alloy.)*

E. Anchors—All anchors, other than aluminum shapes, shall be hot dip galvanized or zinc plated after fabrication.

F. Caulking Compound—Approved non-staining, permanently elastic, waterproof type colored aluminum (6).

-04 FINISHES

Finishes on exposed surfaces shall be as indicated on the drawings and/or herein specified, and in accordance with the following procedures:
(A wide variety of finishes may be specified for architectural aluminum such as Mill Finish or Natural, Mechanical Finishes, Chemical Finishes, Anodic Finishes, Coated Finishes, or a combination of the Mill, Mechanical, Chemical, and Anodic Finishes. Specify the finish desired from the table on page 19, or select a finish and procedure specification from the sample portfolio of Kaiser Aluminum Architectural Finishes.)

-05 SAMPLES

Submit for the approval of the architect duplicate samples of materials with surface preparation and finishes as specified. Samples shall be representative of the materials to be used on the project, and all materials installed shall match the approved samples.

-06 SHOP DRAWINGS

Before executing any of the work in this section, submit prints of shop drawings for approval by the architect. Drawings shall show dimensions, sizes, thicknesses, gauges, materials, finishes, joining, attachments, and relationship of work of this section to adjoining construction. All work shall be fabricated and erected in accordance with the approved drawings.

-07 EXPANSION AND CONTRACTION

Aluminum work shall be designed and anchored so

there will be no objectionable distortion, nor the fastenings seriously stressed as the metal expands and contracts.
Expansion joints shall be located as shown and shall be designed and constructed so as to be watertight.
(Architectural aluminum alloys have a coefficient of thermal expansion of 0,000013/degree F/unit of length.) (Example: A piece of aluminum 20 ft. long will expand or contract 0.312" or approximately 5/16" in a 100° F temperature change.)

-08 PROTECTION OF CONTACT SURFACES

A. Dissimilar Metals—Where aluminum materials are placed in contact with or fastened to dissimilar metals, with the exception of stainless steel or zinc, the surfaces shall be—
given a heavy brush coat of zinc chromate primer made with a synthetic resin vehicle (1), followed by two coats of aluminum metal and masonry paint (5).
or
given a heavy brush coat of alkali-resistant bituminous paint (2),
or
separated with a non-absorptive tape or gasket.

B. Masonry or Plaster—Where aluminum materials are placed in contact with, or built into, masonry or plaster, they shall be given a heavy brush coat of alkali-resistant bituminous paint (2) or clear methacrylate lacquer (3).

C. Wood—Where aluminum materials are placed in contact with green or wet wood, or any other absorptive material subject to repeated wetting, or wood treated with a noncompatible preservative (4), the contact surfaces shall be—
given a heavy brush coat of aluminum pigmented bituminous paint,
or
given two coats of aluminum metal and masonry paint (5),
or
given two coats of aluminum house paint. Seal joints with approved caulking material.
(Dissimilar metals should be painted if drainage from them passes over aluminum work.)
(1) zinc chromate primer made with a synthetic resin vehicle:
Benj. Moore, Inc.—Ironclad Zinc Chromate Primer
duPont-77-3 Zinc Chromate Primer
National Lead Company—041 Zinc Chromate Primer
Pittsburgh Plate Glass—17-6 Zinc Chromate Primer
Sherwin-Williams—E90Y3 Zinc Chromate Primer
(2) alkali-resistant bituminous paint:
Koppers Chemical Company
Pittsburgh Coke & Chemical Company
(few manufacturers have trade names of this product)
(3) clear methacrylate lacquer:
duPont—1234 Clear Acrylic Lacquer
National Lead Company—C8560 Clear Aluminum Coating
Sherwin-Williams—SSA Lacquer, Clear T1C189
(4) non-compatible preservatives: (unfriendly to aluminum)
Chapman Chemical Company—Chapman's W. R.
National Lead Company—70-90 Wood Preservative
Pittsburgh Plate Glass—Seal Treat
Acceptable wood preservatives: (friendly to aluminum)
Pentachlorophenol solutions . . . Wolman salts . . . Creosote . . . Zinc Naphthanate
(5) aluminum metal and masonry paint:
Benj. Moore, Inc.—Weather Proof Aluminum
duPont—977 Aluminum Paint Ready Mixed
National Lead Company—29-02 Ready Mixed Aluminum
Pittsburgh Plate Glass—22-3 Metaleaf
Sherwin-Williams Company—B59SI Aluminum
Silver-Brite
(6) caulking compounds:
Parr Paint and Color—Alumilastic
Minnesota Mining—EC 899

-09 WORKMANSHIP

Aluminum work shall be fabricated in a shop where quality of work is in accordance with the highest standards for work of this type. All work shall be executed by mechanics skilled in the fabrication of aluminum, and shall be true to detail with sharp, clean profiles, fitted with proper joints and intersections, and with finishes as specified.
(Additional paragraphs covering specific products or applications may be included under this clause.)

-10 ERECTION

All work shall be erected plumb, level, square and in proper alignment and relationship to work of other trades. Work shall be free from waves, buckles, sags or other defects. Anchors shall be as shown on the drawings to provide secure anchorage for all parts of the work.
Erection shall be executed by highly skilled mechanics and in accordance with the highest standards for work of this type.

-11 PROTECTION AND CLEANING

Adequate protection shall be provided during fabrication, shipment, site storage and erection to prevent damage to the finished work due to stains, discoloration, scratches, or any other cause. After erection, all work shall be cleaned of protective materials and surface blemishes by—*(select one)*
the general contractor
or
aluminum contractor
or
cleaning contractor
In accordance with recommendations in Kaiser Aluminum publication "Care, Cleaning and Maintenance of Architectural Aluminum" and left in a condition satisfactory to the architect.

OTHER KAISER ALUMINUM LITERATURE

Additional literature, which may be valuable as complementary reference material, includes the following:

- Care, Cleaning and Maintenance of Architectural Aluminum
- Finishes for Architectural Aluminum

Other Kaiser Aluminum literature can be found elsewhere in Sweet's, as indicated in the chart below. All of the items listed can be obtained from your Kaiser Aluminum representative—or write to Kaiser Aluminum & Chemical Sales, Inc., Architect's Service Department, 1924 Broadway, Oakland 12, California.

Title	Where to find it in Sweet's	
	Architectural File	Industrial Construction File
Thresholds and Window Sills Extruded shapes to meet a wide variety of interior and exterior doorway and floor conditions.	19b/Ka	
Ornamental Extrusions Facing system, ornamental handrails, angles, channels, beams, rod, bar, pipe, tube and other standard extruded shapes for architectural use.	6a/Kai	
Copings and Gravel Stops Extruded shapes for flat-roof coping protection and for curbing gravel on built-up roofs.	8b/Kai	8g/Kai
Industrial Roofing and Siding Aluminum ribbed, v-beam and corrugated roofing and siding in variety of sizes and thicknesses; also its use in insulated sandwich-wall construction.	8b/Ka	8b/Ka

KAISER ALUMINUM & CHEMICAL SALES, INC.
1924 Broadway, Oakland 12, California

AKRON, OHIO
First National Tower
Phone: Blackstone 3-6105

ATLANTA, GEORGIA
55 Marietta Street N.W.
Phone: Jackson 3-1903

BALTIMORE, MARYLAND
7215 York Road
Phone: VAlley 5-9033

BIRMINGHAM, ALABAMA
1206 20th Street South
Phone Alpine 2-5196

BOSTON 16, MASSACHUSETTS
20 Providence Street
Phone: Hancock 6-7255

BUFFALO 22, NEW YORK
257 Elmwood Ave.
Phone: Elmwood 9050

CHARLOTTE, NORTH CAROLINA
129 West Trade St.
Phone: FRanklin 5-7358

CHICAGO 1, ILLINOIS
360 North Michigan Avenue
Phone: Dearborn 2-5080

CINCINNATI 6, OHIO
2330 Victory Parkway
Capital 1-5550

CLEVELAND 13, OHIO
55 Public Square
Phone: Superior 1-3000

COLUMBUS, OHIO
395 E. Broad St.
Phone: Capital 1-5539

DALLAS 1, TEXAS
1712 Commerce Street
Phone: Riverside 7-1501

DAVENPORT, IOWA
220 Main Street
Phone: 3-8005

DAYTON, OHIO
349 West First Street Bldg.
Phone: Baldwin 4-0317

DENVER, COLORADO
655 Broadway
Phone: Alpine 5-3459

DETROIT 2, MICHIGAN
7700 Second Ave.
Phone: Trinity 3-8000

GRAND RAPIDS 2, MICHIGAN
822 Cherry St.
Phone: Glendale 6-8601

HARTFORD 5, CONNECTICUT
95 Woodland St.
Phone: CHapel 6-7421

HOUSTON 2, TEXAS
3400 Montrose Blvd.
Phone: Jackson 3-5518

INDIANAPOLIS 4, INDIANA
333 North Pennsylvania St.
Phone: Melrose 4-8311

KANSAS CITY 11, MISSOURI
3101 Broadway
Phone: Valentine 1-3780

LOS ANGELES 17, CALIFORNIA
900 Wilshire Boulevard
Phone: Madison 6-4801

LOUISVILLE 2, KENTUCKY
823-3 Commonwealth Bldg.
Fourth & Broadway
Phone: Juniper 4-2114

MEMPHIS, TENNESSEE
3355 Poplar Avenue
Phone: FAirfax 3-8549

MIAMI, FLORIDA
1400 N. W. 36th St.
Phone: Newton 3-3431

MILWAUKEE 3, WISCONSIN
1701 West Wisconsin Ave.
Phone: West 3-5864

MINNEAPOLIS, MINN.
3033 Excelsior Boulevard
Phone Walnut 7-8728

NEWARK, NEW JERSEY
744 Broad St.
Phone: Market 4-6116

NEW ORLEANS 12, LOUISIANA
124 Camp Street
Phone: Tulane 4678

NEW YORK, NEW YORK
300 Park Avenue
Phone: Plaza 9-1100

OAKLAND 12, CALIFORNIA
360 22nd Street
Phone: Crestview 1-2211

OMAHA 31, NEBRASKA
8401 West Dodge Road
Phone: Webster 7846

PHILADELPHIA, PENNSYLVANIA
3 Penn Center Plaza Suite 2000
Phone: Locust 8-0634

PHOENIX, ARIZONA
213 N. First Ave.
Phone: ALpine 3-4841

PITTSBURGH 22, PENNSYLVANIA
140 Stanwix Street
Phone: Express 1-0280

PORTLAND 5, OREGON
1220 South West Morrison St.
Phone: Capitol 6-4351

SAN DIEGO 3, CALIFORNIA
438 Olive Street
Phone: Cypress 8-8211

SAGINAW, MICHIGAN
124 South Jefferson
Phone: Pleasant 5-0543

ST. LOUIS 5, MISSOURI
10 South Brentwood Boulevard
Phone: Volunteer 3-1100

SEATTLE 4, WASHINGTON
910 Fifth Avenue
Phone: Elliott 7821

SOUTH BEND 1, INDIANA
108 N. Main Street
Phone: Central 3-9311

SPOKANE 1, WASHINGTON
West 601 Riverside
Phone: Temple 2704

SYRACUSE, NEW YORK
615 W. Genesse Street
Phone: Granite 4-6825

TOLEDO, OHIO
1806 Madison Ave.
Phone: CHerry 8-6246

WICHITA 2, KANSAS
2602 East Central Avenue
Phone: Murray 4-1001

YORK, PENNSYLVANIA
1771 East Market Street
Phone: York 47-1028

YOUNGSTOWN 12, OHIO
4005 Hillman St.
Phone: Sterling 8-2441

EXPORT OFFICE: 1924 Broadway, Oakland 12, California WASHINGTON OFFICE: 1625 Eye Street, Washington, D. C.

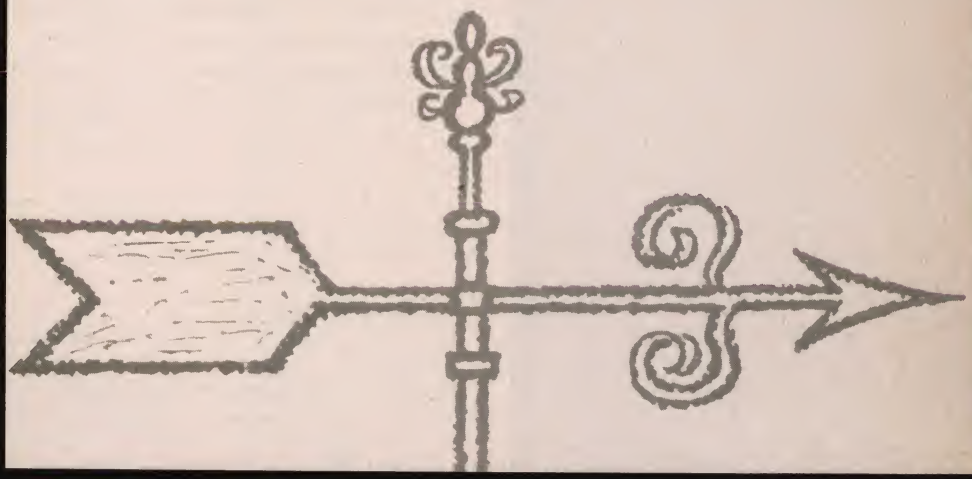
KAISER ALUMINUM

ARCHITECT'S SERVICE

Kaiser Aluminum architectural representatives work closely with architects and fabricators throughout the country to help them receive the maximum benefits of designing in aluminum. This service is available to any architect interested in finding out more about this versatile metal. For details contact your nearest Kaiser Aluminum sales office.

BI 143 PRINTED IN U. S. A.

Ornamental Extrusions







KAISER ALUMINUM

1960



A.I.A. File No. 15-L

KAISER ALUMINUM

ORNAMENTAL EXTRUSIONS

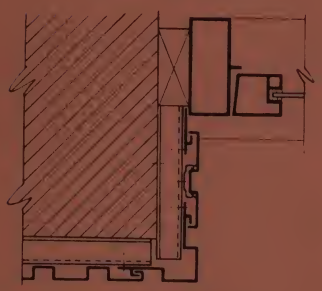
Aluminum offers the architect an ideal medium for expressing strength, lightness and a *natural* beauty to enhance the character of any design. The metal is lastingly beautiful—easy-to-maintain, durable, corrosion resistant, *and* economical!

Readily available from Kaiser Aluminum distributor stocks is a wide range of aluminum extruded shapes for ornamental applications. These include a wall facing system, handrails, rod, bar, pipe and tube, and architectural and structural shapes.

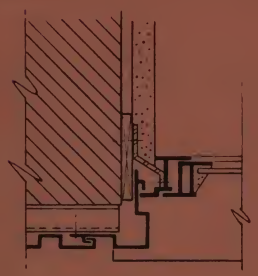
KAISER ALUMINUM FACING SYSTEM

TYPICAL DETAILS

Scale: 1½" = 1'-0"

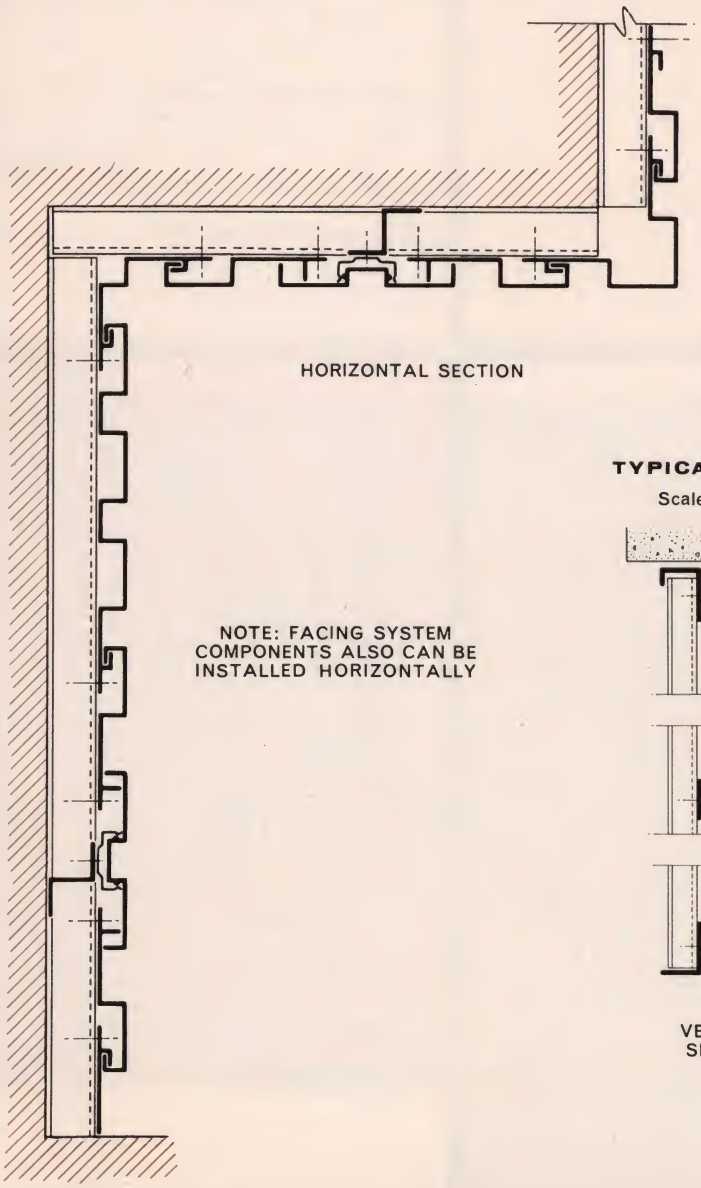


HORIZONTAL SECTION AT DOOR FRAME



HORIZONTAL SECTION AT WINDOW JAMB

The Kaiser Aluminum standard facing system comprises seven basic interlocking components, adaptable to exterior or interior walls, columns or other flat surfaces. Extruded sections of graceful design, alternating shallow channels with raised flats, provide a pleasing textured effect of highlights and shadows. Facing components can be installed vertically or horizontally.

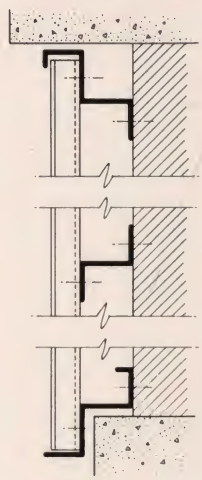


HORIZONTAL SECTION

NOTE: FACING SYSTEM COMPONENTS ALSO CAN BE INSTALLED HORIZONTALLY

TYPICAL DETAILS

Scale: 3" = 1'-0"



VERTICAL SECTION

INSTALLATION

Furring zee is installed horizontally at approximately 6' intervals. Vertical furring zee is attached to wall at planned location of *joint cover*. Then *cap and sill stops* are fastened down. Facing component installation begins at corners or edges. *Joint cover clips* are attached at 12" vertical intervals along center line of joint on the vertical furring zee. Finally the *joint cover* is snapped in place.

For horizontal facing applications furring zees are installed vertically instead of horizontally.



KAISER ALUMINUM & CHEMICAL SALES, INC.

SPECIFICATIONS

–01 GENERAL CONDITIONS

"The General Conditions of the Contract for the Construction of Buildings," (*) standard form of the American Institute of Architects, current edition, is part of this specification.

*(*And "Supplementary General Conditions"*)

–02 WORK INCLUDED

1. Kaiser Aluminum Facing System, Section Nos._____
(*Section numbers of various components in the Facing System may be obtained from selection tables.*)
2. Miscellaneous fasteners, straps, plates required in connection with the work of this section.
3. Caulking and sealing required in connection with the work of this section.

WORK NOT INCLUDED

(*All items to be excluded from this section should be listed here together with section under which they are specified.*)

–03 MATERIALS

All aluminum alloys specified herein shall be as produced by Kaiser Aluminum & Chemical Corporation.

A. Kaiser Aluminum Facing System, alloy 6063-T42. Joint cover clip—stainless steel.
B. Fasteners, alloy 2024-T4.

–04 FINISHES

Finishes on exposed surfaces shall be as indicated on the drawings and/or herein specified and in accordance with the following procedures:

(*Insert code designation for finish desired. Refer to Kaiser Aluminum publication, "Finishes for Architectural Aluminum," A.I.A. File No. 25-C-3.*)

–05 INSTALLATION

All work shall be installed plumb, level, square and in proper alignment and relationship to work of other trades.

Work shall be free from waves, buckles, sags or other defects. Anchors shall be as shown on the drawings to provide secure anchorage and allow for expansion of all parts of the work.

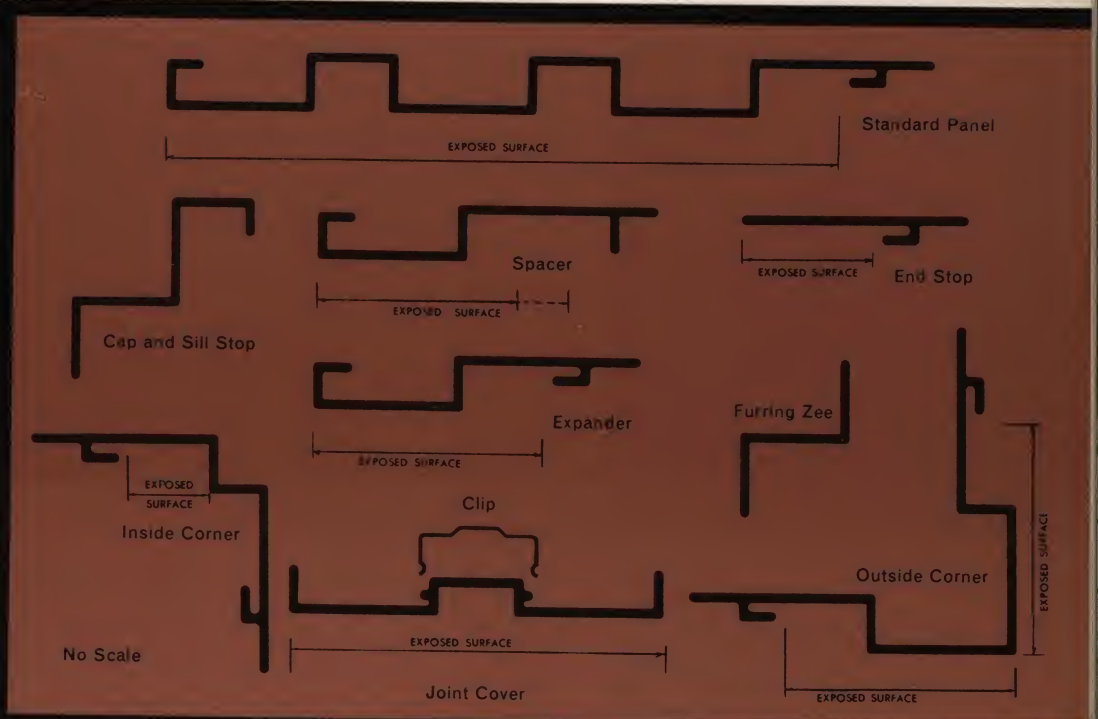
Installation shall be executed by highly skilled mechanics and in accordance with the highest standards for work of this type.

SHORT FORM SPECIFICATION:

Furnish and install Kaiser Aluminum extruded Facing System as shown in the drawings, complete with accessory items. Install in accordance with recommended procedures and standards of Kaiser Aluminum & Chemical Sales, Inc.

Note to the architect: When specifying other aluminum architectural items, such as copings, gravel stops, thresholds and sills, handrails, architectural angles, beams, etc., in addition to facing-system components, refer to the Kaiser Aluminum publication, "Aluminum in Architecture," A.I.A. File No. 15-J, for the general specification covering all such components.

COMPONENT	SECTION No.	EXPOSED SURFACE	WEIGHT PER FOOT LBS.
STANDARD PANEL	HK-278	6 23/32"	1.294
CAP AND SILL STOP	HK-348		0.434
SPACER	HK-279	2" MIN. 2½" MAX.	0.562
END STOP	HK-347	1 9/32"	0.312
EXPANDER	HK-345	2 9/32"	0.559
JOINT COVER	HK-280	3¾"	0.613
FURRING ZEE	HK-283		0.292
OUTSIDE CORNER	HK-282	2 9/32"	0.954
INSIDE CORNER	HK-346	¾"	0.637



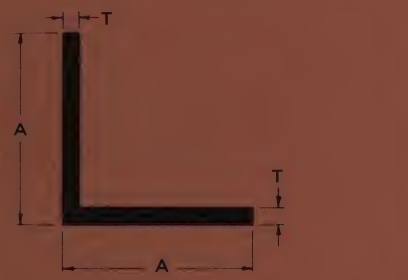
KAISER ALUMINUM

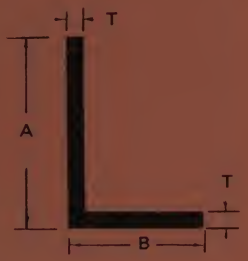
ARCHITECTURAL AND STRUCTURAL SHAPES

Kaiser Aluminum standard architectural shapes have many applications in ornamental work. The inherent advantages of aluminum's beauty and its relative freedom from surface maintenance problems make it highly superior to other building materials in most applications. In addition, the light weight and workability of aluminum make possible the shop-fabrication of sub-assemblies, speeding up the job and providing closer control over workmanship.

ARCHITECTURAL SHAPES

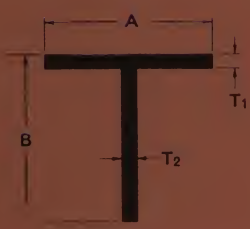
ALLOY: 6063-T5











ANGLES—EQUAL LEGS

STANDARD WAREHOUSE LENGTHS 16′-0″

SECTION NO.	DIMENSIONS		EST. WT./FT. LBS.	SECTION NO.	DIMENSIONS		EST. WT./FT. LBS.
	A	T			A	T	
HA-84	½″	1/16″	0.070	HA-88	1¼″	⅛″	0.355
HA-83	½″	⅛″	0.131	HA-121	1¼″	3/16″	0.522
HA-110	⅝″	⅛″	0.168	HA-89	1½″	⅛″	0.431
HA-85	¾″	1/16″	0.107	HA-90	1½″	3/16″	0.632
HA-86	¾″	⅛″	0.206	HA-126	1¾″	⅛″	0.506
HA-116	1″	1/16″	0.145	HA-91	2″	⅛″	0.581
HA-87	1″	⅛″	0.281	HA-92	2″	3/16″	0.860
HA-118	1″	3/16″	0.408	HA-127	2″	¼″	1.126

ANGLES—UNEQUAL LEGS

STANDARD WAREHOUSE LENGTHS 16′-0″

SECTION NO.	DIMENSIONS			EST. WT./FT. LBS.	SECTION NO.	DIMENSIONS			EST. WT./FT. LBS.
	A	B	T			A	B	T	
HA-165	¾″	⅜″	3/32″	0.116	HA-94	1½″	¾″	⅛″	0.319
HA-171	1″	½″	3/32″	0.158	HA-192	1½″	1″	⅛″	0.356
HA-93	1″	½″	⅛″	0.206	HA-95	2″	1″	⅛″	0.431
HA-174	1″	¾″	⅛″	0.244	HA-96	3½″	1¼″	⅛″	0.694
HA-177	1¼″	½″	⅛″	0.244					

CHANNELS—SHARP CORNERS

STANDARD WAREHOUSE LENGTHS HC-27, 28, 29 and 30 20′-0″. ALL OTHERS 16′-0″

SECTION NO.	DIMENSIONS			EST. WT./FT. LBS.	SECTION NO.	DIMENSIONS			EST. WT./FT. LBS.
	A	B	T			A	B	T	
HC-56	½″	⅜″	⅛″	0.150	HC-29	1½″	½″	⅛″	0.336
HC-21	½″	½″	3/32″	0.148	HC-122	1¾″	½″	⅛″	0.374
HC-57	½″	¾″	⅛″	0.263	HC-123	1¾″	¾″	⅛″	0.450
HC-65	⅝″	⅝″	⅛″	0.244	HC-124	1¾″	1″	⅛″	0.524
HC-24	¾″	⅜″	⅛″	0.186	HC-131	2″	½″	⅛″	0.413
HC-26	¾″	¾″	⅛″	0.299	HC-30	2″	1″	⅛″	0.563
HC-27	1″	½″	⅛″	0.262	HC-151	2¼″	⅛″	⅛″	0.563
HC-88	1″	1″	⅛″	0.413	HC-365	3″	½″	⅛″	0.563
HC-28	1¼″	½″	⅛″	0.299	HC-131	3″	1″	⅛″	0.713
HC-97	1¼″	1¼″	⅛″	0.526	HC-184	5″	2″	3/16″	1.945

SPECIAL CHANNELS

STANDARD WAREHOUSE LENGTHS 16′-0″

SECTION NO.	DIMENSIONS			EST. WT./FT. LBS.
	A	B	T	
HC-376	2″	2″	¼″	1.668
HC-206	2⅜″	1¼″	3/16″	1.033

TEES—SHARP ANGLE

STANDARD WAREHOUSE LENGTHS 16′-0″

SECTION NO.	DIMENSIONS			EST. WT./FT. LBS.	SECTION NO.	DIMENSIONS			EST. WT./FT. LBS.
	A	B	T_1 & T_2			A	B	T_1 & T_2	
HT-55	¾″	¾″	⅛″	0.206	HT-68	1″	¾″	⅛″	0.244
HT-57	¾″	1¼″	⅛″	0.280	HT-69	1″	1″	⅛″	0.281
HT-61	⅜″	1¼″	5/32″ & ⅛″	0.328	HT-76	1¼″	⅜″	⅛″	0.300
HT-65	1″	½″	⅛″ & ⅜″	0.319	HT-223	2″	¾″	⅛″	0.394

KAISER ALUMINUM

STRUCTURAL SHAPES
ALLOY: 6061-T6



ANGLES—EQUAL LEGS—STANDARD WAREHOUSE LENGTHS 25′-0″

SECTION No.	DIMENSIONS A	DIMENSIONS T	EST. WT./FT. LBS.	SECTION No.	DIMENSIONS A	DIMENSIONS T	EST. WT./FT. LBS.	SECTION No.	DIMENSIONS A	DIMENSIONS T	EST. WT./FT. LBS.
HA-31	¾″	⅛″	0.20	HA-21	1¾″	¼″	0.96	HA-40	3″	⅜″	2.47
HA-1	1″	⅛″	0.28	HA-15	2″	⅛″	0.58	HA-260	3″	½″	3.23
HA-43	1″	3⁄16″	0.40	HA-4	2″	3⁄16″	0.85	HA-261	3½″	¼″	1.99
HA-248	1″	¼″	0.51	HA-11	2″	¼″	1.11	HA-10	3½″	5⁄16″	2.46
HA-98	1¼″	⅛″	0.34	HA-34	2″	⅜″	1.61	HA-262	3½″	⅜″	2.93
HA-99	1¼″	3⁄16″	0.51	HA-24	2½″	3⁄16″	1.07	HA-35	3½″	½″	3.83
HA-51	1½″	⅛″	0.42	HA-23	2½″	¼″	1.40	HA-16	4″	¼″	2.28
HA-32	1½″	3⁄16″	0.62	HA-54	2½″	5⁄16″	1.73	HA-55	4″	5⁄16″	2.83
HA-22	1½″	¼″	0.81	HA-8	3″	3⁄16″	1.28	HA-46	4″	⅜″	3.37
HA-45	1¾″	⅛″	0.50	HA-2	3″	¼″	1.68				
HA-5	1¾″	3⁄16″	0.73	HA-14	3″	5⁄16″	2.08				

ANGLES—UNEQUAL LEGS—STANDARD WAREHOUSE LENGTHS 25′-0″

SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T	EST. WT./FT. LBS.	SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T	EST. WT./FT. LBS.
HA-17	1½″	1¼″	⅛″	0.39	HA-3	2½″	2″	3⁄16″	0.96
HA-297	1½″	1¼″	3⁄16″	0.57	HA-49	2½″	2″	¼″	1.26
HA-298	1½″	1¼″	¼″	0.73	HA-322	2½″	2″	5⁄16″	1.55
HA-302	1¾″	1¼″	⅛″	0.42	HA-56	3″	2″	3⁄16″	1.07
HA-303	1¾″	1¼″	3⁄16″	0.62	HA-7	3″	2″	¼″	1.40
HA-304	1¾″	1¼″	¼″	0.81	HA-324	3″	2″	⅜″	2.05
HA-311	2″	1½″	⅛″	0.50	HA-12	3″	2½″	¼″	1.54
HA-47	2″	1½″	3⁄16″	0.73	HA-50	3½″	2½″	¼″	1.68
HA-48	2″	1½″	¼″	0.96	HA-13	4″	3″	¼″	1.99
					HA-18	4″	3″	⅜″	2.92

STANDARD CHANNELS—STANDARD WAREHOUSE LENGTHS 25′-0″

SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T_1	DIMENSIONS T_2	EST. WT./FT. LBS.	SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T_1	DIMENSIONS T_2	EST. WT./FT. LBS.
HC-17	3″	1.410″	0.170″	0.170″	1.42	HC-23	5″	2.032″	0.472″	0.190″	3.97
HC-3	3″	1.498″	0.258″	0.170″	1.73	HC-5	6″	1.945″	0.225″	0.200″	3.00
HC-228	3″	1.596″	0.356″	0.170″	2.07	HC-1	6″	2.034″	0.314″	0.200″	3.63
HC-2	4″	1.580″	0.180″	0.180″	1.85	HC-230	6″	2.157″	0.437″	0.200″	4.50
HC-12	4″	1.647″	0.247″	0.180″	2.16	HC-20	7″	2.110″	0.230″	0.210″	3.54
HC-10	4″	1.720″	0.320″	0.180″	2.50	HC-13	8″	2.290″	0.250″	0.220″	4.25
HC-7	5″	1.750″	0.190″	0.190″	2.31	HC-16	8″	2.527″	0.487″	0.220″	6.48
HC-18	5″	1.885″	0.325″	0.190″	3.11						

'I'-BEAMS—STANDARD WAREHOUSE LENGTHS 25′-0″

SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T	EST. WT./FT. LBS.	SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T	EST. WT./FT. LBS.
HI-9	3″	2.330″	0.170″	1.96	HI-10	5″	3.000″	0.210″	3.43
HI-55	3″	2.509″	0.349″	2.59	HI-59	5″	3.284″	0.494″	5.10
HI-1	4″	2.660″	0.190″	2.65	HI-60	6″	3.330″	0.230″	4.30
HI-56	4″	2.796″	0.326″	3.28	HI-61	6″	3.443″	0.343″	5.10

'H'-BEAMS
STANDARD WAREHOUSE LENGTHS 25′-0″

SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T_1	DIMENSIONS T_2	EST. WT./FT. LBS.
HI-3	4″	4.000″	0.312″	0.290″	4.76

ZEES
STANDARD WAREHOUSE LENGTHS 25′-0″

SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS T	EST. WT./FT. LBS.
HZ-78	3″	2 1⁄16″	2 1⁄16″	¼″	2.33
HZ-231	1″	¾″	1″	⅛″	0.377

TEES—STANDARD WAREHOUSE LENGTHS 25′-0″

SECTION No.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T	EST. WT./FT. LBS.
HT-4	1½″	1¼″	¼″	0.79
HT-138	2″	2″	¼″	1.26

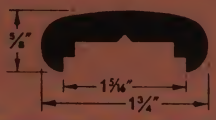
KAISER ALUMINUM

ORNAMENTAL HANDRAIL SHAPES

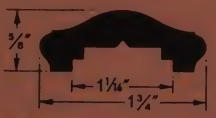
ALLOY 6063-T5

Kaiser Aluminum handrails are designed for exterior and interior stairways, balconies, porches and walks. They can be wall-mounted by means of a standard wall bracket. For open balustrades, standard rod, bar or tube sections can be used to create a supporting structure. Another type of handrail system, using aluminum pipe, is assembled with standard flush fittings. Tables of these pipe sizes appear on page 7. Shown here are cross-sections of the various types of Kaiser Aluminum ornamental handrails available. Standard channels available for use with ornamental handrails are covered on page 4.

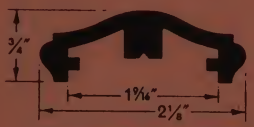
STANDARD WAREHOUSE LENGTHS 20'-0"



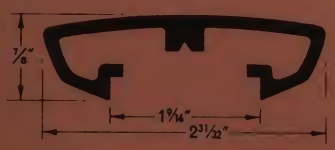
HK-353 (mating channel HC-28 or HC-97)
EST. WT./FT. LBS.—0.744



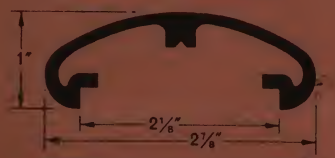
HK-352 (mating channel HC-27 or HC-88)
EST. WT./FT. LBS.—0.738



HK-351 (mating channel HC-29)
EST. WT./FT. LBS.—0.744



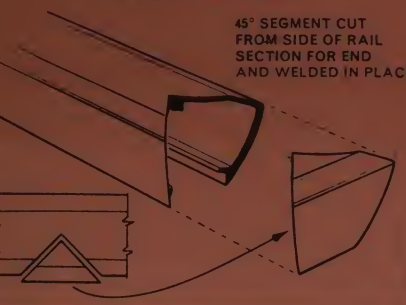
HK-421 (mating channel HC-29)
EST. WT./FT. LBS.—0.941



HK-350 (mating channel HC-30 or HC-131)
EST. WT./FT. LBS.—0.840



HK-419 (mating channel HC-29)
EST. WT./FT LBS.—1.105



SPECIFICATIONS

-01 GENERAL CONDITIONS

"The General Conditions of the Contract for the Construction of Buildings," (*) standard form of the American Institute of Architects, current edition, is part of this specification.

*(And "*Supplementary General Conditions*")

-02 WORK INCLUDED

Furnish all labor, materials, and equipment to complete all handrail work shown on the drawings and/or herein specified as follows:

A. Kaiser Aluminum (*pipe railing*) (*ornamental handrail extrusions and standard rod and bar*)

Type_____. Section No._____
(*Types and section numbers of pipe railing and handrail extrusions being used may be obtained from selection tables.*)

-03 MATERIALS

All aluminum alloys specified herein shall be as produced by Kaiser Aluminum & Chemical Corporation.

A. Pipe railing—Alloy 6063-T6
B. Ornamental handrail extrusions—Alloy 6063-T5

-04 FINISHES

Interior installation—All aluminum components of handrail assembly shall be given Kaiser Aluminum M1 (*) finish during fabrication.

Prior to occupancy of building, all aluminum components of handrail assembly shall be cleaned with No. 0 stainless steel wool saturated with wax. Surfaces shall be rubbed to luster with soft cloth.

Exterior installations—All aluminum components of handrail assembly shall be given Kaiser Aluminum M1 A1 (*) finish during fabrication.

(**Other finishes may be selected from Kaiser Aluminum publication, "Finishes for Architectural Aluminum," A.I.A. File No. 25-C-3.*)

-05 INSTALLATION

All work shall be installed level, square and in proper alignment and relationship to work of other trades. Fasteners and anchors shall be as shown on drawings to provide secure anchorage of all parts of the work. Erection shall be executed by highly skilled mechanics and in accordance with the highest standards for work of this type.

SHORT FORM SPECIFICATION:

Furnish and install Kaiser Aluminum (*pipe railing*) (*ornamental handrail extrusions and standard rod and bar*) as shown on the drawings, complete with accessory items. Install in accordance with recommended procedures and standards of Kaiser Aluminum & Chemical Sales, Inc.

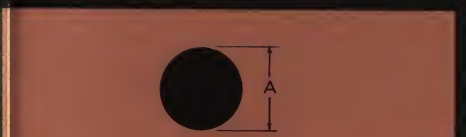
Note to the architect: When specifying aluminum architectural items such as copings, gravel stops, thresholds, sills, facing system, architectural angles, beams, etc., in addition to handrails, refer to the Kaiser Aluminum publication, "Aluminum in Architecture," A.I.A. File No. 15-J, for the general specification covering all such components.

KAISER ALUMINUM

ROD, BAR, PIPE AND TUBE

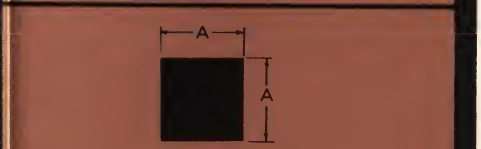
Many striking, decorative effects can be achieved using standard Kaiser Aluminum rod, bar, piping and tubing. Whether for indoor or outdoor use, these standard extrusions can be designed into an infinite variety of assemblies for ornamental grille-work, railings, door and window frames, store fronts, or built-in furniture components.

The metal is easily drilled, punched, turned or milled and can be bent or shaped to almost any desired contour.



ROUND ROD—ALLOY 6063-T5—STANDARD WAREHOUSE LENGTHS = 16′ 0″

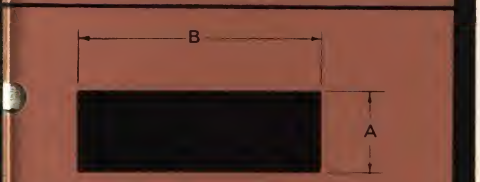
SECTION NO.	DIMENSION A	EST. WT./FT.
HK—240	½″	0.235
HK—175	¾″	0.530
HK—317	1″	0.942



SQUARE ROD—ALLOY 6063-T5—STANDARD WAREHOUSE LENGTHS = 16′ 0″

SECTION NO.	DIMENSION A	EST. WT./FT.
HK—120	⅜″	0.169
HK—122	½″	0.300
HK—123	⅝″	0.468
HK—124	¾″	0.676

SECTION NO.	DIMENSION A	EST. WT./FT.
HK—8	1″	1.200
HK—127	1¼″	1.874
HK—21	1½″	2.700

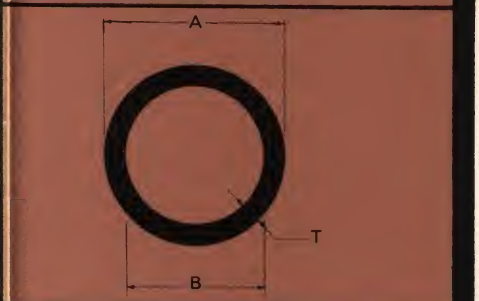


RECTANGULAR ROD—ALLOY 6063-T5—STANDARD WAREHOUSE LENGTHS = 16′ 0″

SECTION NO.	DIM. A	DIM. B	EST. WT./FT.
HK—27	⅛″	½″	0.074
HK—40	⅛″	⅝″	0.094
HK—53	⅛″	¾″	0.112
HK—139	⅛″	1″	0.150
HK—140	⅛″	1¼″	0.186
HK—141	⅛″	1½″	0.226
HK—248	⅛″	1¾″	0.263
HK—142	⅛″	2″	0.299
HK—34	3⁄16″	½″	0.113
HK—25	3⁄16″	¾″	0.169
HK—33	3⁄16″	1″	0.226
HK—57	3⁄16″	1¼″	0.282
HK—50	3⁄16″	1½″	0.338
HK—58	3⁄16″	2″	0.451
HK—249	3⁄16″	2½″	0.560

SECTION NO.	DIM. A	DIM. B	EST. WT./FT.
HK—59	¼″	½″	0.150
HK—60	¼″	⅝″	0.187
HK—61	¼″	¾″	0.224
HK—54	¼″	1″	0.300
HK—55	¼″	1¼″	0.374
HK—49	¼″	1½″	0.450
HK—250	¼″	1¾″	0.525
HK—36	¼″	2″	0.600
HK—62	¼″	2½″	0.750
HK—63	¼″	3″	0.900
HK—64	⅜″	½″	0.224
HK—65	⅜″	⅝″	0.281
HK—147	⅜″	¾″	0.337
HK—67	⅜″	1″	0.450
HK—143	⅜″	1¼″	0.563
HK—68	⅜″	1½″	0.676
HK—69	⅜″	2″	0.900
HK—71	⅜″	3″	1.350

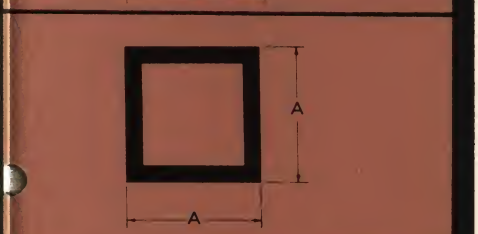
SECTION NO.	DIM. A	DIM. B	EST. WT./FT.
HK—86	½″	¾″	0.449
HK—88	½″	1″	0.599
HK—89	½″	1¼″	0.749
HK—90	½″	1½″	0.899
HK—92	½″	2″	1.199
HK—145	½″	2½″	1.500
HK—93	½″	3″	1.799
HK—79	¾″	1½″	1.350
HK—84	¾″	2″	1.800
HK—102	1″	1½″	1.799
HK—104	1″	2″	2.400



PIPE—SCHEDULE 40—ALLOY 6063-T6—STANDARD WAREHOUSE LENGTHS = 20′ 0″

NOM. SIZE	SECT. NO.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T	EST. WT./FT.
⅜″	HP—178	0.675″	0.493″	0.091″	0.196
½″	HP—2	0.840″	0.622″	0.109″	0.294
¾″	HP—3	1.050″	0.824″	0.113″	0.391
1″	HP—4	1.315″	1.049″	0.133″	0.581
1¼″	HP—21	1.660″	1.380″	0.140″	0.786
1½″	HP—5	1.900″	1.610″	0.145″	0.940

NOM. SIZE	SECT. NO.	DIMENSIONS A	DIMENSIONS B	DIMENSIONS T	EST. WT./FT.
2″	HP—34	2.375″	2.067″	0.154″	1.264
2½″	HP—72	2.875″	2.469″	0.203″	2.004
3″	HP—53	3.500″	3.068″	0.216″	2.621
3½″	HP—46	4.000″	3.548″	0.226″	3.151
4″	HP—55	4.500″	4.026″	0.237″	3.733



SQUARE TUBE—ALLOY 6063-T5—0.125″ WALL—STANDARD WAREHOUSE LENGTHS = 21′ 1″

SECTION NO.	DIMENSIONS A	EST. WT./FT.
HP—59	¾″	0.376
HP—61	1″	0.526
HP—65	1¼″	0.674

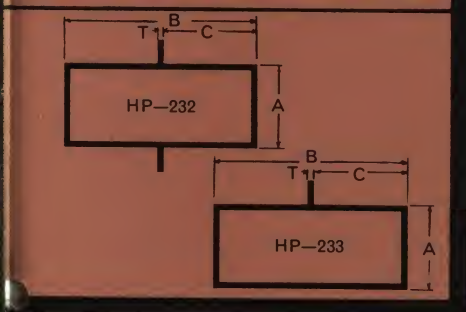
SECTION NO.	DIMENSIONS A	EST. WT./FT.
HP—67	1½″	0.825
HP—69	1¾″	0.974
HP—71	2″	1.126



RECTANGULAR TUBE—ALLOY 6063-T5—0.125″ WALL—STAND. WAREHOUSE LGTHS. = 21′ 1″

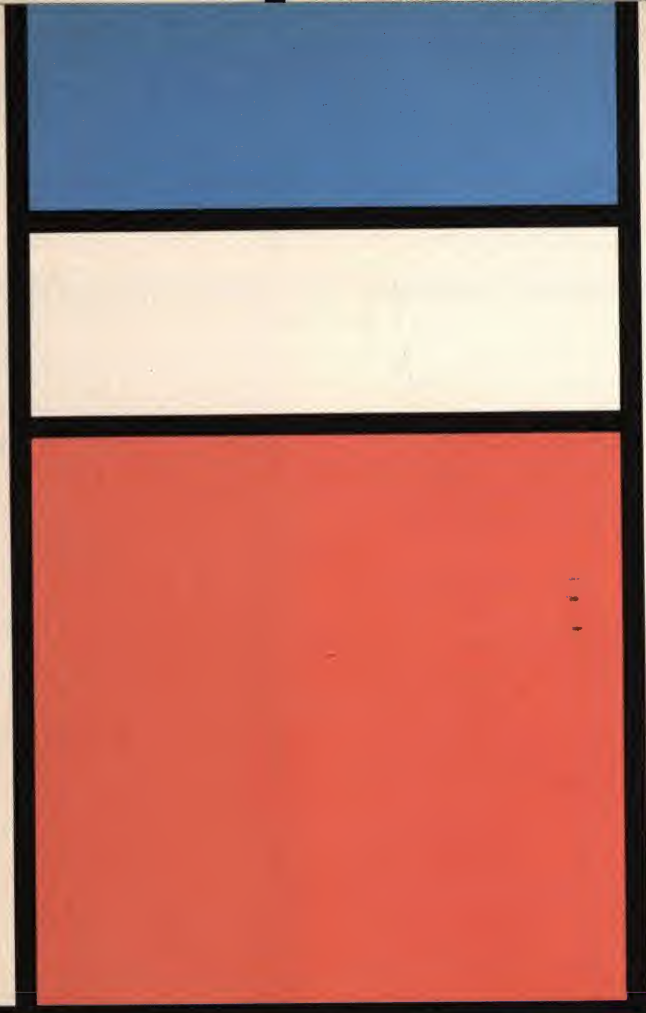
SECTION NO.	DIMENSIONS A	DIMENSIONS B	EST. WT./FT.
HP—58	½″	1″	0.376
HP—60	¾″	1½″	0.600
HP—62	1″	1½″	0.676
HP—63	1″	2″	0.824
HP—66	1¼″	2½″	1.050
HP—68	1½″	2″	0.976
HP—70	1¾″	3″	1.350

SECTION NO.	DIMENSIONS A	DIMENSIONS B	EST. WT./FT.
HP—64	1¾″	3½″	1.500
HP—49	1¾″	4″	1.650
HP—207	1¾″	4½″	1.800
HP—208	1¾″	5″	1.950
HP—187	2″	3″	1.426
HP—216	2″	5″	2.025



FINNED TUBE—ALLOY 6063-T5—WAREHOUSE LENGTHS = 21′ 1″

SECTION NO.	DIMENSIONS A	B	C	D	T	EST WT./FT.
HP—233	1¾″	4″	1 15⁄16″	½″	⅛″	1.800
HP—232	1¾″	4″	1 15⁄16″	½″	⅛″	1.756



ARCHITECTS' SERVICE

Kaiser Aluminum architectural representatives work closely with architects and fabricators throughout the country to help them receive the maximum benefits of designing in aluminum. This service is available to any architect interested in finding out more about this versatile metal. For details contact your nearest Kaiser Aluminum sales office.

OTHER KAISER ALUMINUM LITERATURE

Additional literature, which may be valuable as complementary reference material, includes the following:

- Care, Cleaning and Maintenance of Architectural Aluminum
- Finishes for Architectural Aluminum

Other Kaiser Aluminum literature can be found elsewhere in Sweet's as indicated in the chart at right. All of the items listed can be obtained from your Kaiser Aluminum representative—or write to Kaiser Aluminum & Chemical Sales, Inc., Architects' Service Department, 1924 Broadway, Oakland 12, California.

Title	Where to find it in Sweet's	
	Architectural File	Industrial Construction File
Aluminum in Architecture Alloys and their properties, finishes, standard and custom designed architectural products for monumental, commercial and industrial applications.	6a/Ka	
Thresholds and Window Sills Extruded shapes to meet a wide variety of interior and exterior doorway and floor conditions.	19b/Ka	
Copings and Gravel Stops Extruded shapes for flat-roof coping protection and for curbing gravel on built-up roofs.	8b/Kai	8g/Kai
Industrial Roofing and Siding Aluminum ribbed, v-beam and corrugated roofing and siding in variety of sizes and thicknesses; also its use in insulated sandwich-wall construction.	8b/Ka	8b/Ka

KAISER ALUMINUM

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THE NEW CONCEPT IN QUALITY AND SERVICE

OLIN MATHIESON CHEMICAL CORPORATION / METALS DIVISION

ALUMINUM FOR ARCHITECTURE



OLIN ALUMINUM: A NEW CONCEPT OF QUALITY AND SERVICE

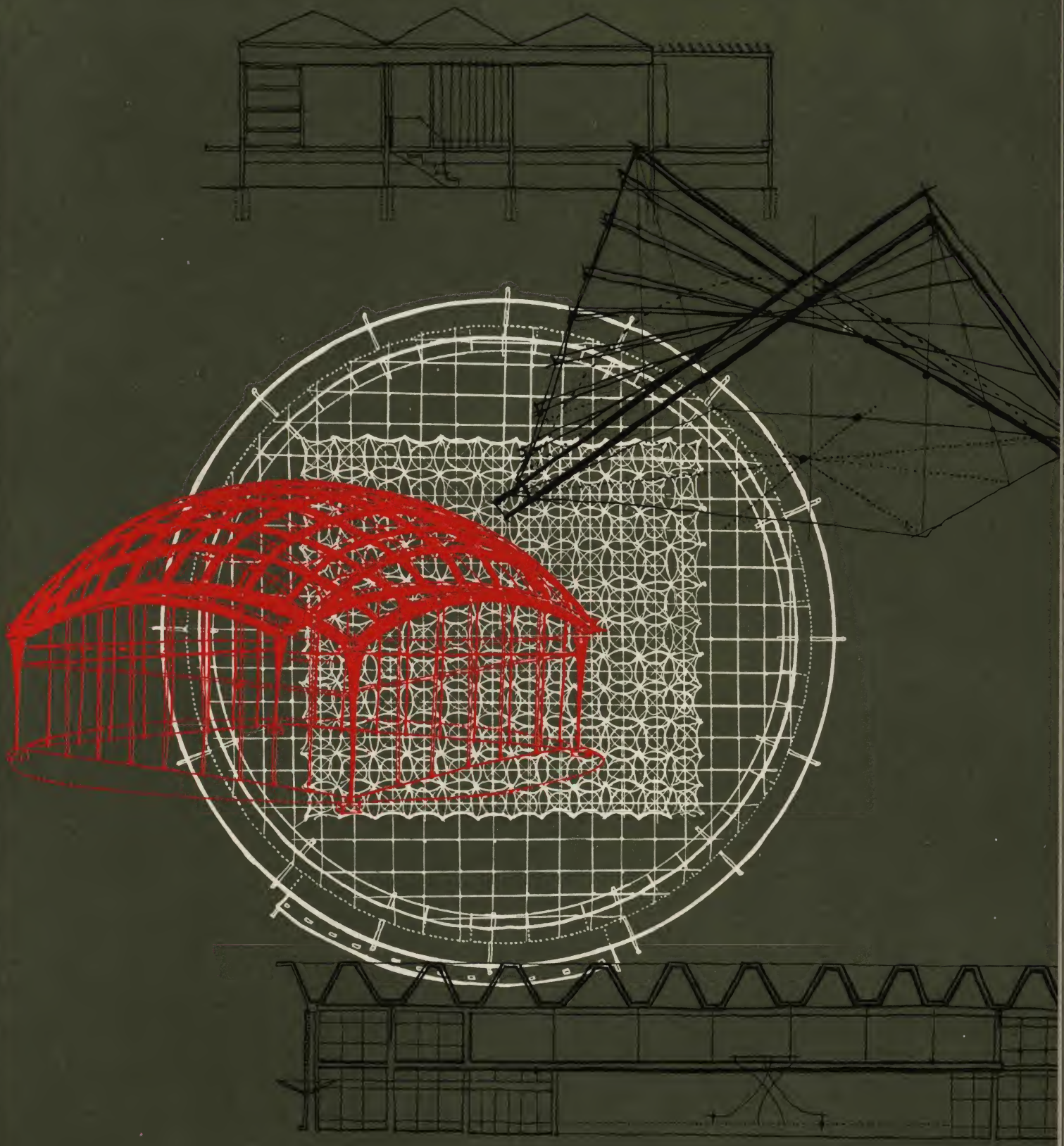
Creativity in the practice of architecture has been synonymous with progress in the building industry. With this identity, largely accomplished by architects who design and supervise the construction of our buildings, must be coupled the complex technology of our expanding industrial skills. The challenge of this market has prompted Olin Mathieson Chemical Corporation to create a new concept of quality and service by Olin Aluminum for the building industry. Guided by seventy years of Olin Mathieson customer satisfaction, ⍟ has already secured an enviable record regarding its basic mill products and customer services. This concept, based upon servicing the needs of the building industry today is utilized to satisfy the creative demands of tomorrow's architecture.

⍟ Service Concept—**General Information: pages 4-5** includes basic data on aluminum properties with explanation of heat treatable and non-heat treatable alloys. **Aluminum Alloy Chart: page 6** lists the variety of alloys available and recommended architectural application. **Typical Properties: page 8** is a compilation of mechanical properties for architectural aluminum alloys in the various scales of temper or hardness.

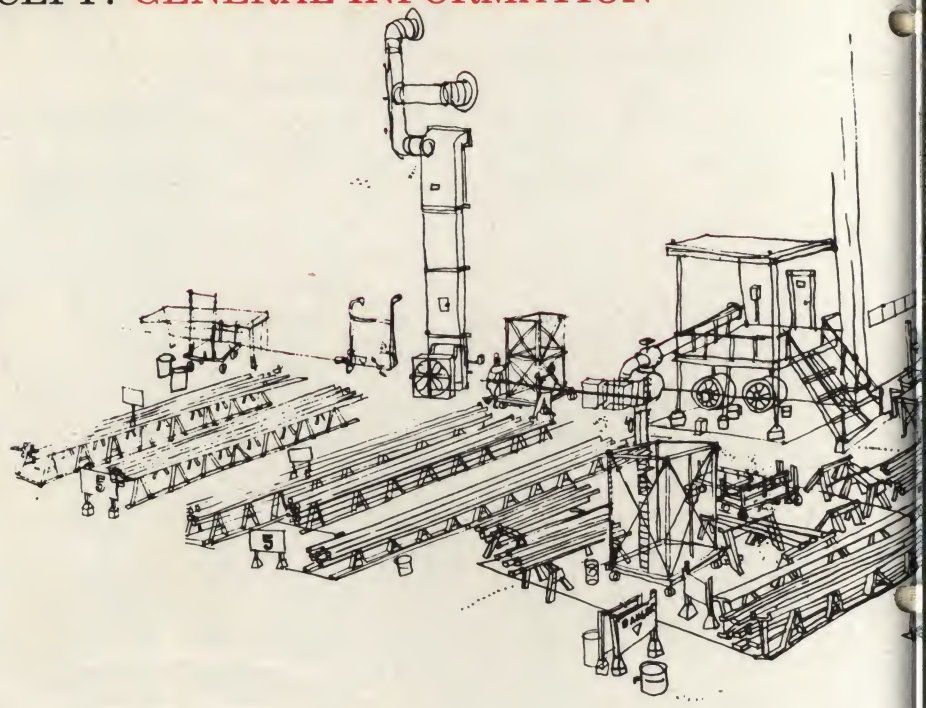
⍟ Quality Concept—**Facilities: page 10** describes the mill structure of Olin Mathieson, its integrated plant operation, and quality control concept. **Mechanical Finishes: page 12** gives a guide to mechanical finishing which has been set up by the National Association of Architectural Metal Manufacturers. **Electrochemical Finishes: page 14** describes the process and gives recommended coatings for the varying architectural exposures. **Applied Finishes: page 16** is a brief description of several applied finishes and sources for further specifications. **Specification Outline: pages 18-19** is a general outline of specifications to be used as a guide when specifying architectural aluminum. **Sales Office Directory: back cover.**

THE ⍟ SERVICE CONCEPT: Depth—Olin Aluminum is organized to give the building industry service to effectively meet its particular requirements. All of these services are integrated through the Olin Aluminum sales offices that are conveniently located throughout the country. Our representatives are qualified by education and experience to give special consideration to building and construction problems and help resolve these problems in relation to the mill products produced by Olin Aluminum and the finished products as produced by the building industry metal fabricators. Additional field representation includes Technical Advisors and Product Specialists to assist in the further translation of new ideas into aluminum. These personalized services, backed up by specially trained Architectural Representatives centrally located and combined with the cooperation and consultation readily available at Metallurgical Research Laboratories in New Haven, Connecticut, offer the construction industries service-in-depth for new aluminum developments.

NEW ARCHITECTURAL FORMS have gained prominence in recent years and stimulated the thinking for structural design. Noteworthy engineering advances have taken shape in space frames and stressed skin structures. Many have been designed in aluminum and hold great promise for this new technology of architecture.



THE ♾ SERVICE CONCEPT: GENERAL INFORMATION



ALUMINUM ALLOYS—High purity aluminum is relatively soft, ductile, and highly resistant to corrosion. By alloying with manganese, magnesium, silicon, copper, zinc, and other metals, it is possible to secure aluminum alloys which have a wide range of properties (see pages 6 & 8) that are particularly suited for architectural application. The temper designations which follow the alloy numbers indicate the type of treatment the metal receives to impart desired mechanical properties.

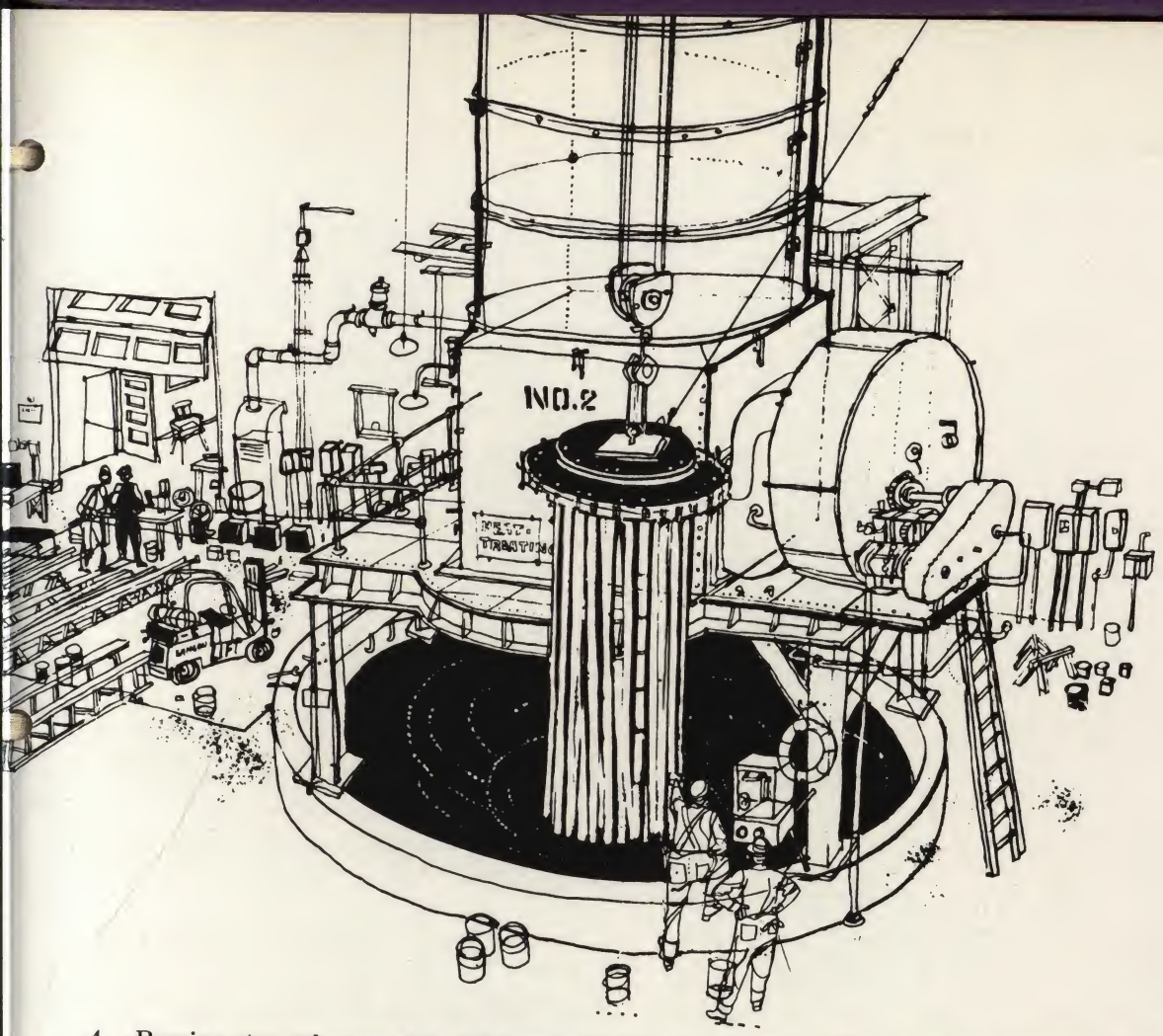
BASIC TYPES—Aluminum products are designated as "Wrought" if their basic form results from mechanical work performed on solid metal. "Cast" products are those formed by pouring metal into a mold.

Aluminum alloys are sub-divided into two groups: (1) non-heat treatable alloys, generally referred to as the "common" alloys and (2) heat treatable alloys. The heat treatable alloys carry the T-temper designation, indicating these alloys have been subjected to controlled heat treatments in order to meet guaranteed mechanical properties. The non-heat treatable alloys carry the H-temper designations, indicating these alloys have been subjected to cold working in order to meet the applicable mechanical properties. Alloy and temper designations along with the guaranteed minimum mechanical properties are standards set by the Aluminum Association and met by all aluminum producers.

ARCHITECTURAL ALLOYS—Since uniformity of color and finish are important for architectural applications, certain alloys have become known as architectural alloys. These fall into two groups (1) those alloys which when anodized, produce the natural bright appearance associated with aluminum, and (2) those alloys which produce, when anodized, tones of gray. (See table, page 6, for those alloys which produce color matches between sheet, extruded, and cast products.) The gray tones, which result from the presence of silicon in the alloy, should not be confused with color as produced by color anodizing. True color anodizing is achieved by the addition of special dyes during the anodizing process.

ENGINEERING PROPERTIES OF ALUMINUM ALLOYS—Data applies to wrought and cast alloys:

1. Young's modulus of elasticity—10,300,000 lbs. per sq. in. (Average, varies with alloy.)
2. Modulus of rigidity (modulus of elasticity in shear)—3,800,000 lbs. per sq. in.
3. Poisson's ratio—0.33.



4. Bearing strength—equal to 1.8 times the tensile strength, when the edge distance in the direction of the applied stress is not less than twice the diameter of the hole.
5. Yield strength—equals the stress at which the material indicates a permanent set of 0.2 per cent.
6. Shear strength—obtained by taking single shear values based on double sheer tests.
7. Fatigue endurance values obtained by subjecting a specimen to 500 million cycles of completely reversed stress using the R. R. Moore type of machine and specimen. (Expressed in 1,000 lbs. per sq. in.)
8. Coefficient of expansion—0.000013 in. per in. per °F. (approx. $\frac{1}{8}$" for every 8' length in 100° F. change.)

RECOMMENDED PROTECTIVE MEASURES AGAINST ELECTROLYTIC CORROSION — When there is the possibility of the presence of moisture, and particularly in heavy industrial and seacoast atmospheres, aluminum should be protected against electrolytic corrosion. Such corrosion may occur when aluminum is placed in contact with dissimilar metals. Effective insulation may be achieved by the use of approved non-absorptive gaskets or by painting the contact surfaces with (1) zinc chromate primer, (2) aluminum pigmented metal-and-masonry paint, or (3) approved bituminous paint. Allow the paint to dry thoroughly before placing the two surfaces in contact with each other. To minimize discoloration of aluminum surfaces, avoid lead pigmented paints and also placing aluminum materials where they are subject to drainage from copper alloys, iron alloys and masonry. As with other materials, aluminum demands good design and detailing practices.

MAINTENANCE OF ALUMINUM—Although aluminum has a high resistance to corrosion and normally will remain clear in appearance, periodic cleanings to remove atmospheric grime will help to preserve its initial finish. Unless the deposits are of long duration and relatively thick, wash with a mild soap and warm water and then rinse and dry. Should these measures prove ineffective, use a nonetching chemical cleaner applied in accordance with the manufacturer's directions. Where the above methods are still ineffective, clean first with a nonetching solvent cleaner and then use a wax-base polish cleaner applied in accordance with the manufacturer's directions. In extreme cases, use a stainless steel wool pad (00 size or finer) and a wax-base polish cleaner. If a strong alkaline or strong acid cleaner must be used, care should be taken to flush all surfaces and joints thoroughly. For further reference see "Care of Aluminum" published by the Aluminum Association, 420 Lexington Ave., New York 17, N. Y. July 1959.

THE ℞ SERVICE CONCEPT: ALUMINUM ALLOY CHART

APPLICATION	ALLOY	COMMENTS
Anodized sheet Formed sheet Plate for mullion and spandrel covers, curtain wall panels, sun shades and other components	Nos. 2 and 5 architectural sheet	Turns to shades of gray when anodized, no. 5 architectural sheet producing darker tone. Excellent color-fastness and corrosion resistance.
	1100	Low strength sheet for metal work and paneling applications requiring very high degree of forming or drawing for fabrication.
	3003	Economical, general purpose sheet. Excellent formability and good corrosion resistance.
	5005	Popular low cost, all-purpose sheet. Matches 6063 extrusions when anodized. Good corrosion resistance and formability. Anodized appearance clearer and lighter than 3003 or 5052 alloys.
	5050	Stronger than 3003 and 5005 alloys. Excellent workability and corrosion resistance. One of the better finishing alloys; gives comparatively clear white appearance after etching or anodizing.
	5052	Highest strength common alloy in general use. Good workability. Excellent resistance to corrosion, particularly to salt water exposure. Thin anodic coatings give it color close to 6061 and 6063 extrusions. Good weldability but requires careful techniques.
	6061	Most economical and versatile of heat-treatable alloys. Good corrosion resistance. Excellent color match with 5005 sheet and 6061 extrusions. Used for moderately high strength sheet applications or rolled structural shapes. Sheet sometimes clad to obtain superior appearance and/or added corrosion protection.
	Anodizing quality sheet 1100 3003 5005	For special, quality applications, such as building and store fronts, where good overall finish is required. Mechanical properties same as 1100, 3003, 5005 sheet respectively.
Castings* for decorative work and building hardware	43	For ornamental (i.e., cast spandrel covers) and hardware products where high strength is relatively unimportant. Turns gray to match no. 2 architectural sheet when anodized.
	214	Best color match for anodized 6063 extrusions. Stronger than 43 alloy castings.
	356	High strength casting alloy. Anodizes with gray tone to match no. 5 architectural sheet.
Extruded Shapes for copings, fascia, gravel stops, trim, handrails, moldings, thresholds, mullions, components	6063	Offers best extruding properties. Anodic appearance matches anodized 5005 Sheet.
	6061	For high strength requirements. Excellent match with 6061 sheet in anodized condition.
	6062	Used in structural applications. Extrudes easier than 6061 while retaining comparable strength.
Fasteners for rivets, nails, screws, bolts	1100	For plain, or anodized rivets and washers.
	6061	For plain or anodized high strength rivets.
	2024	For plain or anodized bolts, nuts, screws and nails.
Industrial Roofing and Siding	Clad 3004	For roofing and siding sheet requiring high corrosion resistance and strength characteristics. Corrugated, ribbed or V-beam sections and embossed patterns.
Gratings	5052	Used in heavier gauges for expanded gratings and walkways. For light gauge shelving, protective screening and ornamental grillwork.
Porcelain Enamel Work for variety of colors in matte semi-gloss or gloss finish	1100 3003 6001	Sheet and plate
	6061 6062 6063	Extrusions
	43 356	Castings
Sheet Metal for ductwork, gutters, flashing	5005	Best quality, medium strength sheet for all-purpose work. Good corrosion resistance and formability.
	3003	Medium strength sheet. Good corrosion resistance and formability.
Welded Members	3003	Tube and pipe applications.
	5052	Excellent corrosion resistance, especially for salt water exposure. Good weldability but requires careful techniques.
	6061	Most economical and versatile heat-treatable alloy, only one readily fusion welded. Good corrosion resistance. Sheet may be clad for superior appearance and/or added corrosion protection.
	6063	Used for architectural metal work because of uniformity of color. Care should be exercised when welding. Use proper welding rod to minimize discoloring when anodizing.

*When castings are anodized for architectural application, they do not dye or anodize evenly due to metal porosity.



COMMERCIAL applications of Olin aluminum are prominent in curtain walls at the Ford Motor Company Staff and Product Engineering Building in Dearborn, Michigan. New developments in pivoted windows, spandrel materials and wall framing devices have given architects greater design latitude than ever before for monumental buildings.

THE ♀ SERVICE CONCEPT: TYPICAL PROPERTIES

NON-HEAT TREATABLE ALLOYS

Alloy	Temper	Government spec. no.	Wt. lbs./cu. in.	Tensile properties: yield strength psi	Tensile properties: ultimate strength psi	Shear: shearing strength psi
1100	0	QQ-A-561	0.098	5,000	13,000	9,000
	H12			15,000	16,000	10,000
	H14			17,000	18,000	11,000
	H16			20,000	21,000	12,000
	H18			22,000	24,000	13,000
3003	0	QQ-A-359	0.099	6,000	16,000	11,000
	H12			18,000	19,000	12,000
	H14			21,000	22,000	14,000
	H16			25,000	26,000	15,000
	H18			27,000	29,000	16,000
Clad 3004	0	—	0.098	10,000	26,000	16,000
	H32			25,000	31,000	17,000
	H34			29,000	35,000	18,000
	H36			33,000	38,000	20,000
	H38			36,000	41,000	21,000
5005	0	—	0.098	6,000	18,000	11,000
	H12			19,000	20,000	14,000
	H14			22,000	23,000	14,000
	H16			25,000	26,000	15,000
	H18			28,000	29,000	16,000
	H32			17,000	20,000	14,000
	H34			20,000	23,000	14,000
	H36			24,000	26,000	15,000
	H38			27,000	29,000	16,000
5050	0	—	0.097	8,000	21,000	15,000
	H32			21,000	25,000	17,000
	H34			24,000	28,000	18,000
	H36			26,000	30,000	19,000
	H38			29,000	32,000	20,000
5052	0	QQ-A-318	0.096	13,000	28,000	18,000
	H32			28,000	35,000	20,000
	H34			31,000	38,000	21,000
	H36			35,000	40,000	23,000
	H38			37,000	42,000	24,000
5083	0	—	0.096	0.25″-0.75″ 22,000	44,000	
				0.751″-2″ 20,000	41,000	
	H113			0.25″-2″ 33,000	46,000	

HEAT TREATABLE ALLOYS

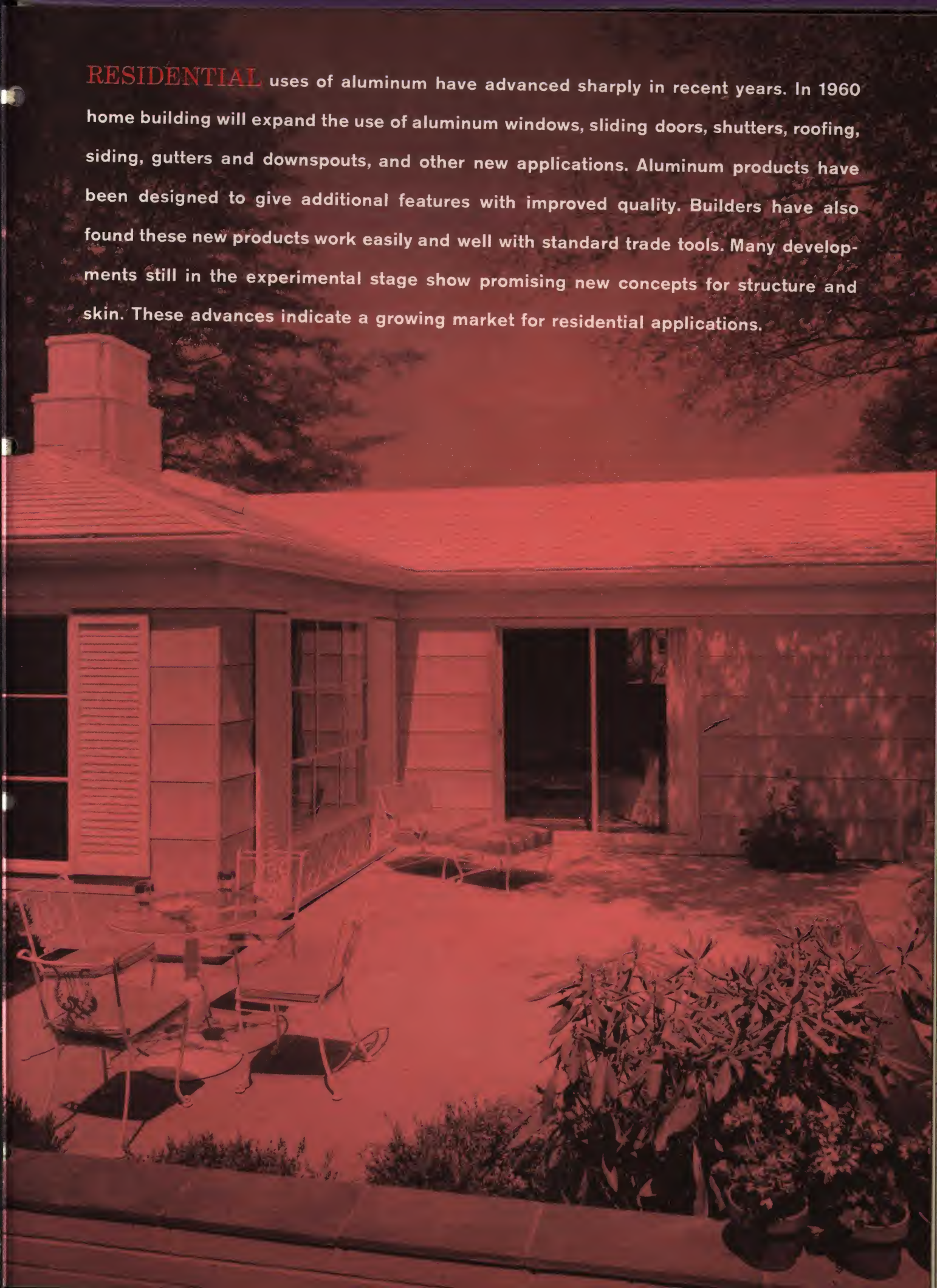
Alloy	Temper	Government spec. no.	Wt. lbs./cu. in.	Tensile properties: yield strength psi	Tensile properties: ultimate strength psi	Shear: shearing strength psi
6061	0	QQ-A-327 (sheet)		8,000	18,000	12,000
	T4	QQ-A-270	0.098	21,000	35,000	24,000
	T6	(extrusions)		40,000	45,000	30,000
6062	0	QQ-A-270		8,000	18,000	12,000
	T4	(extrusions)	0.098	21,000	35,000	24,000
	T6			40,000	45,000	30,000
6063	0	QQ-A-274		7,000	13,000	10,000
	T42	(extrusions)	0.098	13,000	22,000	14,000
	T5			21,000	27,000	17,000
	T6			31,000	35,000	22,000
Clad 2014	0	QQ-A-255		14,000	27,000	18,000
	T4		0.101	42,000	62,000	38,000
	T6			60,000	70,000	42,000
2024	0	QQ-A-268		11,000	27,000	18,000
	T36	(rod & bar)	0.100	57,000	72,000	42,000
	T4			47,000	68,000	41,000

CASTING ALLOYS

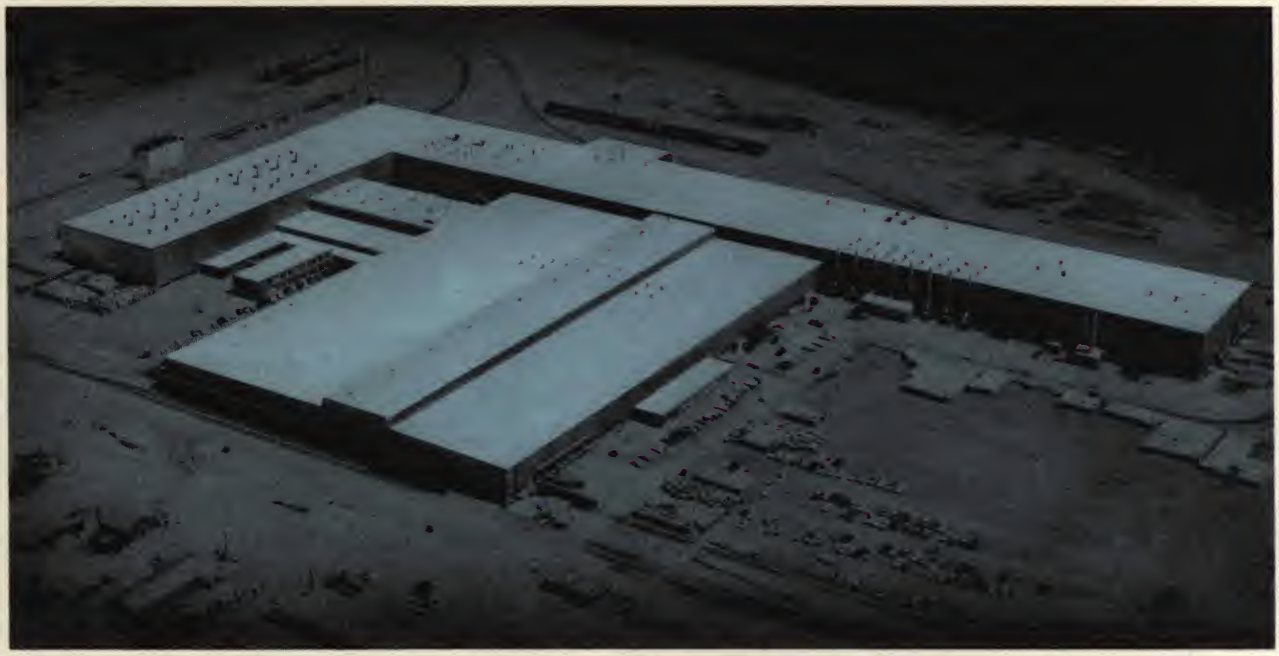
		QQ-A-601 (sand cast)		8,000	19,000	14,000
43	—	QQ-A-596 (permanent mold)	—	9,000	23,000	16,000
		QQ-A-591 (die cast)		16,000	30,000	19,000
		QQ-A-601 (sand cast)		12,000	25,000	20,000
214	—	QQ-A-596 (permanent mold)	—	16,000	27,000	22,000
		QQ-A-601 (sand cast)		24,000	33,000	26,000
356	T6	QQ-A-596 (permanent mold)	—	27,000	40,000	32,000

NOTE: Additional reference material is available from the "Aluminum Construction Manual" published by the Aluminum Association, 420 Lexington Ave., New York 17, N. Y. August 1959.

RESIDENTIAL uses of aluminum have advanced sharply in recent years. In 1960 home building will expand the use of aluminum windows, sliding doors, shutters, roofing, siding, gutters and downspouts, and other new applications. Aluminum products have been designed to give additional features with improved quality. Builders have also found these new products work easily and well with standard trade tools. Many developments still in the experimental stage show promising new concepts for structure and skin. These advances indicate a growing market for residential applications.



THE ♀ QUALITY CONCEPT: FACILITIES



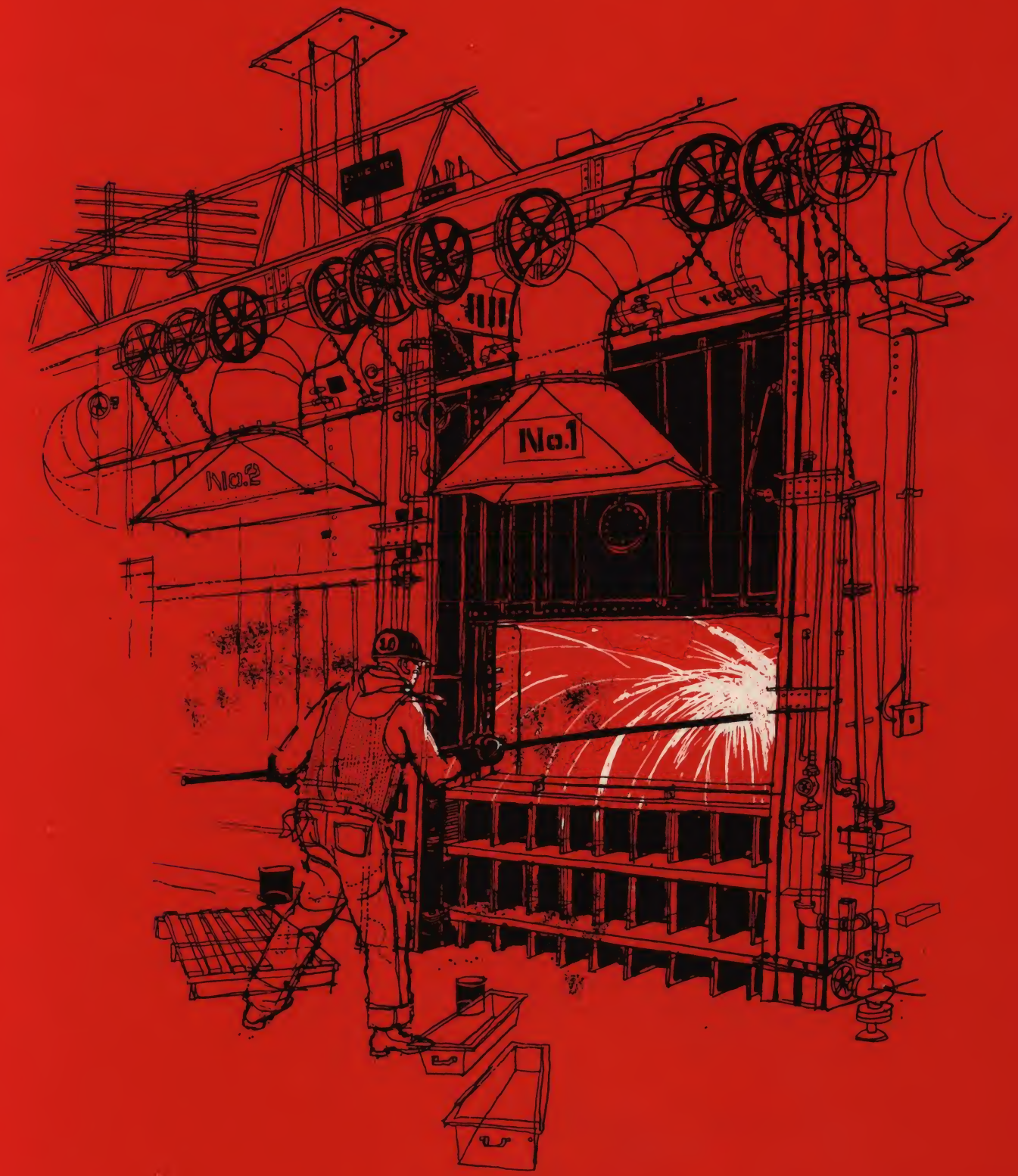
Advanced technology in aluminum and architecture has broadened the construction market to such an extent that unique and special processes for aluminum have been developed. To assure results in these specially processed materials, Olin Aluminum has formulated and put into practice a carefully planned program of quality control at the mill level to fulfill the obligations of building industry demands.

The control of quality inherent throughout the production of Olin Aluminum sets a new standard for the aluminum industry. Moreover, your source of supply is assured by this fact: Every Olin Aluminum customer is the terminal point of a massive, unbroken chain of supply that extends from the bauxite mine to facilities that assure the prompt servicing of your aluminum requirements.

Olin Aluminum is custom-tailored to specifications supplied by its users. In addition to pig, ingot and billet products, Olin Aluminum makes available sheet and light plate (rolled at Omal plant shown in illustration above), extrusions, pipe, tubing, electrical conductor and busway, as well as rod and bar stocks, in a great variety of forms, shapes and alloys. Use of these aluminum products can help simplify customer manufacturing procedures and enable them to achieve maximum efficient production from every pound utilized.

Olin Aluminum does not manufacture a finished architectural product, but supplies its customers with metal for further fabrication. This, combined with the availability of a unique service-in-depth, assures the building and construction industries the end-products they require.

REMELTING FURNACE. **The control of quality begins at the remelting furnace. The mining of ore, refining of bauxite, and the reduction of alumina to metal were basic needs. Now each heat of metal is destined for application. Here the individual blend of alloys for each order takes form. Here each customer's requirement and the concept of quality from furnace to finish has begun.**



THE ♁ QUALITY CONCEPT: MECHANICAL FINISHING

MECHANICAL — Generally, the appearance of various wrought and cast alloys differs slightly in the mill-produced condition. This is because combinations of inherently different alloying elements produce gradations of surface tones and shades. The simplest way to attain a uniform surface is to utilize some mechanical finishing action. Most freshly polished aluminum alloys look very much alike before anodizing. Once so treated, aluminum retains a bright pleasing appearance for a considerable period, depending on atmospheric conditions and maintenance.

Mechanical finishing includes grinding, buffing, and polishing to achieve different textures, brightness, or uniform surface appearance. Sandblasting is used to produce a matte surface, or to economically and quickly give shining aluminum components gray, non-reflective surfaces. Scratch brushing and satin finishing are accomplished with rotating wire brushes ranging from coarse to fine depending upon finish specified. Other methods used to obtain satin finishes include the use of oil lubricated abrasive cloths, stainless steel wool in conjunction with oil and emery powder, or stainless steel wool saturated with a mild soap solution.

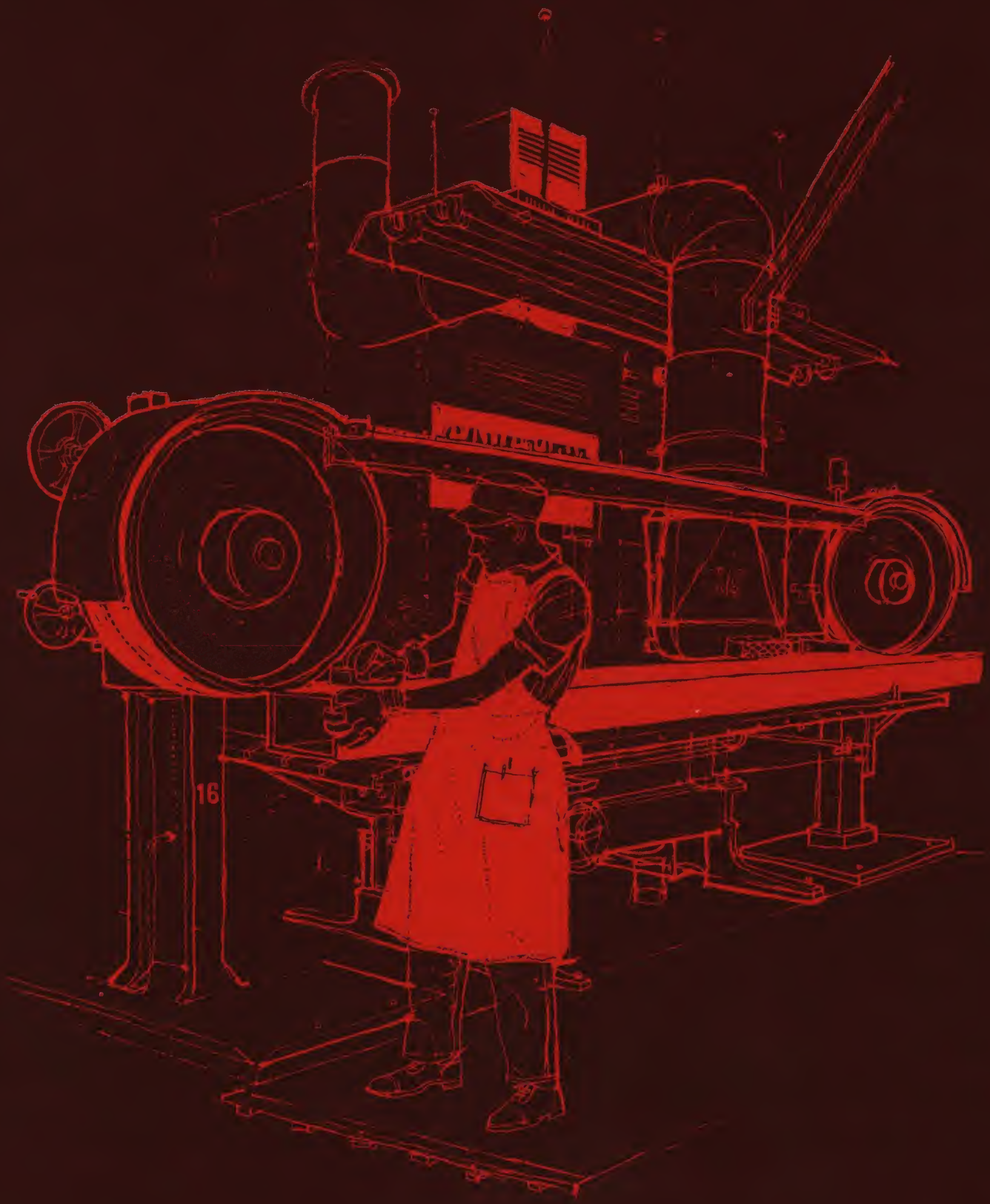
The selection of a proper finish should be carefully decided, for upon it depends the amount and type of maintenance necessary through the years after the job is completed.

MECHANICAL FINISH DESIGNATIONS

Olin	NAAMM	Appearance	How Obtained
NF	NA-0	Natural	As fabricated.
M1	NA-1	Lustrous (requires maintenance to retain appearance)	Polished with aluminum oxide compound. Grits to be coarser than 320; final polishing with a 320 grit, using peripheral wheel speed 6000 feet per minute.
M2	NA-2	High Polish (finest surface appearance available)	Polished with aluminum oxide compound. Grits to be coarser than 320; final polishing with a 320 grit, using peripheral wheel speed of 6000 feet per minute. Polishing followed by buffing, using aluminum oxide buffing compound and peripheral wheel speed of 7000 feet per minute.
M3	NA-3	Coarse Satin Finish (uniform appearance)	Coarse satin finish producing a surface with parallel scratch lines. Grit used to be a 120 to 140 aluminum oxide type, peripheral wheel speed of 6000 feet per minute.
M4	NA-4	Medium Satin Finish	Medium satin finish producing a surface with parallel scratch lines. Grit used to be a 140 to 180 aluminum oxide type; peripheral wheel speed of 6000 feet per minute.
M5	NA-5	Fine Satin Finish (popular architecturally)	Fine satin finish producing a surface with parallel scratch lines. Grit used to be a 180 to 220 aluminum oxide type; peripheral wheel speed of 6000 feet per minute.
M6	NA-6	Hand Rubbed (not for large areas)	Hand-rubbed finish, using stainless steel wool lubricated with neutral soap solution. Final rubbing with #0 steel wool.
M7	NA-7	Matte Finish	Wire wheel brush finish, using stainless steel wire brush. Wire diameter .0095″; peripheral wheel speed 6000 feet per minute.
M8	NA-8	Common Soft Texture (for uneven surfaces)	Vonnegut wheel finish, using #220 aluminum oxide type abrasive, flat type wheel for flat surfaces, shredded type for uneven surfaces.
M9	NA-9	Matte Finish (presents gray appearance when anodized)	Coarse sand blast finish, using 16 to 20 mesh silica sand if darkening is not a problem; otherwise aluminum oxide type abrasive. Air pressure 30 to 90 pounds (depending on gauge of material); gun distance one foot from work at an angle of 60 to 90 degrees.
M10	NA-10	Rough Texture (not recommended for aluminum under ⅛″ thick)	Medium sand blast finish, using 40 to 50 mesh silica sand if darkening is not a problem; otherwise aluminum oxide type abrasive. Air pressure 30 to 90 pounds (depending upon gauge of material); gun distance one foot from work at an angle of 60 to 90 degrees.
M11	NA-11	Fine Texture (uneconomical on very thin sheet)	Fine sand blast finish, using 100 to 200 mesh silica sand if darkening is not a problem; otherwise aluminum oxide type abrasive. Air pressure 30 to 90 pounds (depending upon gauge of material); gun distance one foot from work at an angle of 60 to 90 degrees.
M12	NA-12	Textured	Shot blast finish, varying in texture with the size of shot and amount of air pressure used.
M13	NA-13	Very High Polish (Mirror-like finish)	Buffed and chemically brightened finish.
M14	NA-14	Uniform Matte Finish	A uniform, matte surface created by loose sand, gravel, steel balls used in an agitating process. Suited for castings and flat sheet.

NOTE: The Olin & NAAMM (National Association of Architectural Metal Manufacturers) designations are temporary pending recommended designations by the Aluminum Association.

GRINDING, BUFFING, AND POLISHING are done with various types of equipment by the end product fabricator. Although many types of finishing machinery are available to produce specific end products, the belt sanding device is common in architectural fabrication because of its flexible shop application.



THE ♀ QUALITY CONCEPT: CHEMICAL FINISHING

ELECTROCHEMICAL – The natural beauty of mill finish is protected by a strongly affinitive and instantly self-renewing transparent oxide coating. Resistance of the surface to chemical attack or abrasion is dependent on the depth of this coating, which can be greatly increased beyond the natural thickness by anodizing, an electrochemical process. This materially enhances the metal's surface beauty and increases its resistance to corrosion and abrasive damage. The anodized film makes a dense, chemically inert but transparent coating for etched or other mechanical finishes and does not disturb surface textures. This process imparts a hard surface and increases the resistance to scratching, discoloration, and pitting.

The final appearance of an anodized finish depends upon the particular type of coating specified, the alloy used and the surface pretreatment rendered. Appearance matches between different components must be predetermined by the exact selection of comparable alloys in the various types of mill products used.

CHEMICAL AND ELECTROCHEMICAL FINISH DESIGNATIONS

Olin	NAAMM	Appearance	How Obtained
C1	NA-CE	Fine Texture (without directional grain or lines)	Caustic etch, using solution of sodium hydroxide or sodium hydroxide and sodium chloride. Degree of etch to be controlled by time and strength of solution.
CC1	No Symbol	(color selection ranges from natural to straw, gray and green)	Chemical conversion coatings such as Alodine, Bonderite or Lyfinite; used for decoration and as a pre-paint treatment.
CB	NA-CB	Very High Polish (Mirror-like finish)	Chemically brightened finish, highly lustrous and bright.
A1	NA-1A	Clear (most popular architectural anodic coating)	Clear anodized finish having a minimum coating thickness of .0004″ and minimum coating weight of 17 mg. per square inch.
A2	NA-2A	Clear (provides maximum reasonable protection for exterior applications)	Clear anodized finish having a minimum coating thickness of .0008″ and minimum coating weight of 35 mg. per square inch.
AP1	No Symbol	(as specified)	Paints, lacquers and enamel applied to properly prepared aluminum surfaces.
AP2	No Symbol	(as specified)	Porcelain enamel.
S	No Symbol	(as specified)	Any finish not listed; must be specified.

COMBINED FINISHES

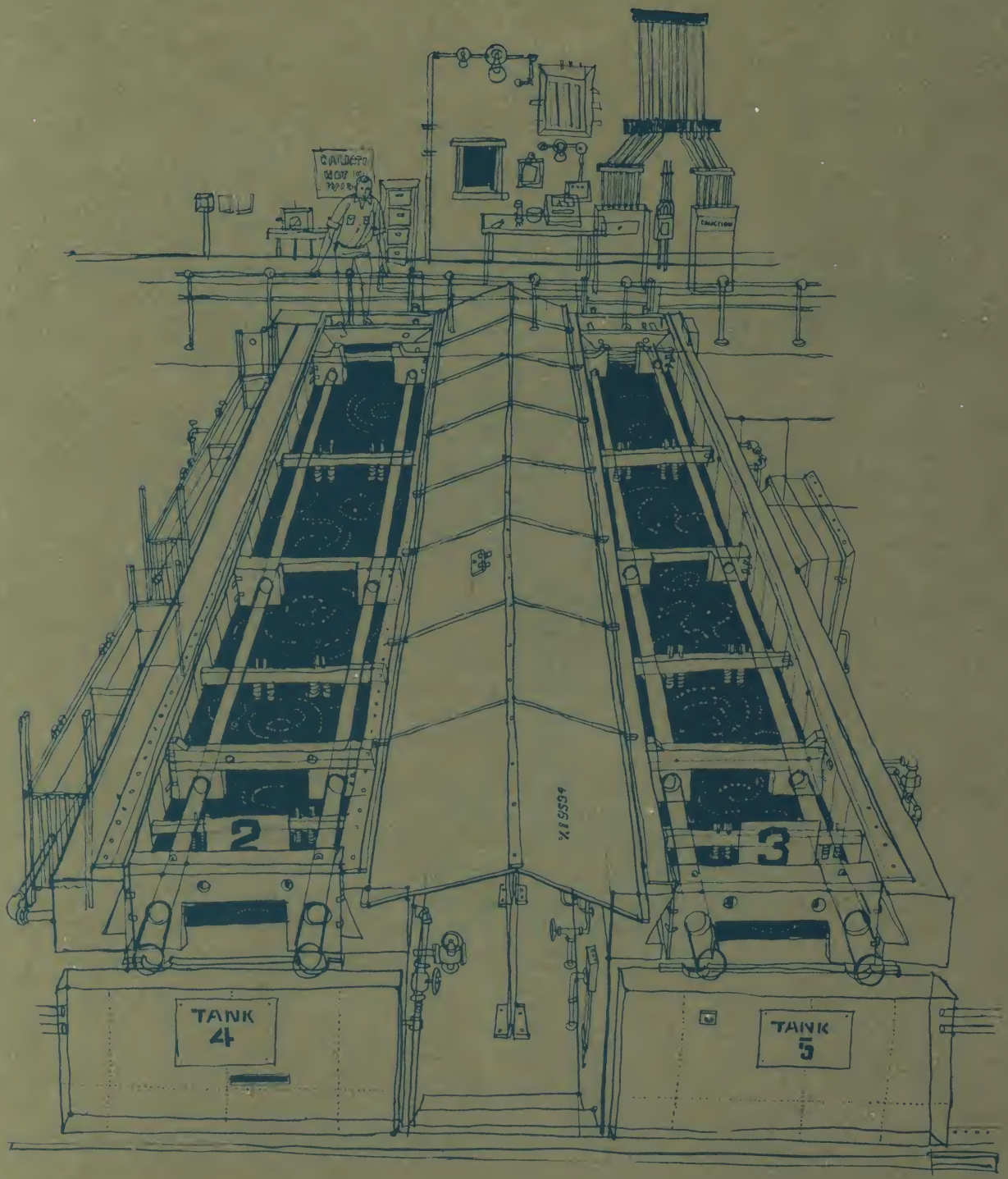
To designate combination finishes, simply combine the symbols identifying the various component finishes. As an example, a fine textured surface obtained by caustic etch combined with a clear anodized finish (.0008″ thick) would be written as C1A2.

RECOMMENDED COATING GUIDE FOR ANODIZING

	Sheet, Tubing and Extruded Shapes (Minimum Coating)						Castings (Minimum Coating)					
Exterior Applications	Cleaned Often		Cleaned Occasionally		Cleaned Seldom		Cleaned Often		Cleaned Occasionally		Cleaned Seldom	
	Thickness	Wt.	Thickness	Wt.	Thickness	Wt.	Thickness	Wt.	Thickness	Wt.	Thickness	Wt.
Suburban	0.0006″	28	0.0006″	28	0.0008″	35	0.0006″	28	0.0006″	28	0.0008″	35
Urban	0.0006″	28	0.0008″	35	0.0010″	44	0.0006″	28	0.0006″	28	0.0008″	35
Industrial	0.0008″	35	0.0010″	44	0.0010″	44	0.0008″	35	0.0008″	35	0.0010″	44
Interior Applications	Thickness		Weight				Thickness		Weight			
Light Duty	0.00025″		12				0.00025″		12			
Medium Duty	0.00040″		17				0.00040″		17			
Heavy Duty	0.00080″		35				0.00060″		28			

For all color anodized exterior work, minimum coating thickness should be 0.0010 inches.
All coating weights expressed in milligrams per square inch.

ANODIZING is probably the most commonly used protective finish for aluminum. Colorless aluminum oxide coating has long been recognized as a permanent hard surface which will protect mechanical finishes applied to the metallic surface. Recent developments in dyeing have expanded both the range of color and the durability of the process for color application, and account for its great popularity in new architectural applications.



THE ♀ QUALITY CONCEPT: APPLIED FINISHES

PORCELAIN ENAMEL—Porcelain enamel is one of the most durable finishes offered for application to aluminum. The porcelain coatings are inorganic glass frits, fused to the aluminum at temperatures above 800° F. At these temperatures, aluminum permanently combines with the porcelainized surface material to provide a product with the additional properties of glass. The enamel application is usually applied after fabrication, thus permitting an almost limitless number of shapes suitable for curtain wall construction and other architectural applications.

Porcelain enameled aluminum can be drilled, sawed, sheared and punched, according to specifications, without the danger of unsightly corrosion and fractures forming at the raw edges. Should slight damage occur, there is no progressive spalling and no consequent rusting to stain or otherwise mar the remaining exposed areas.

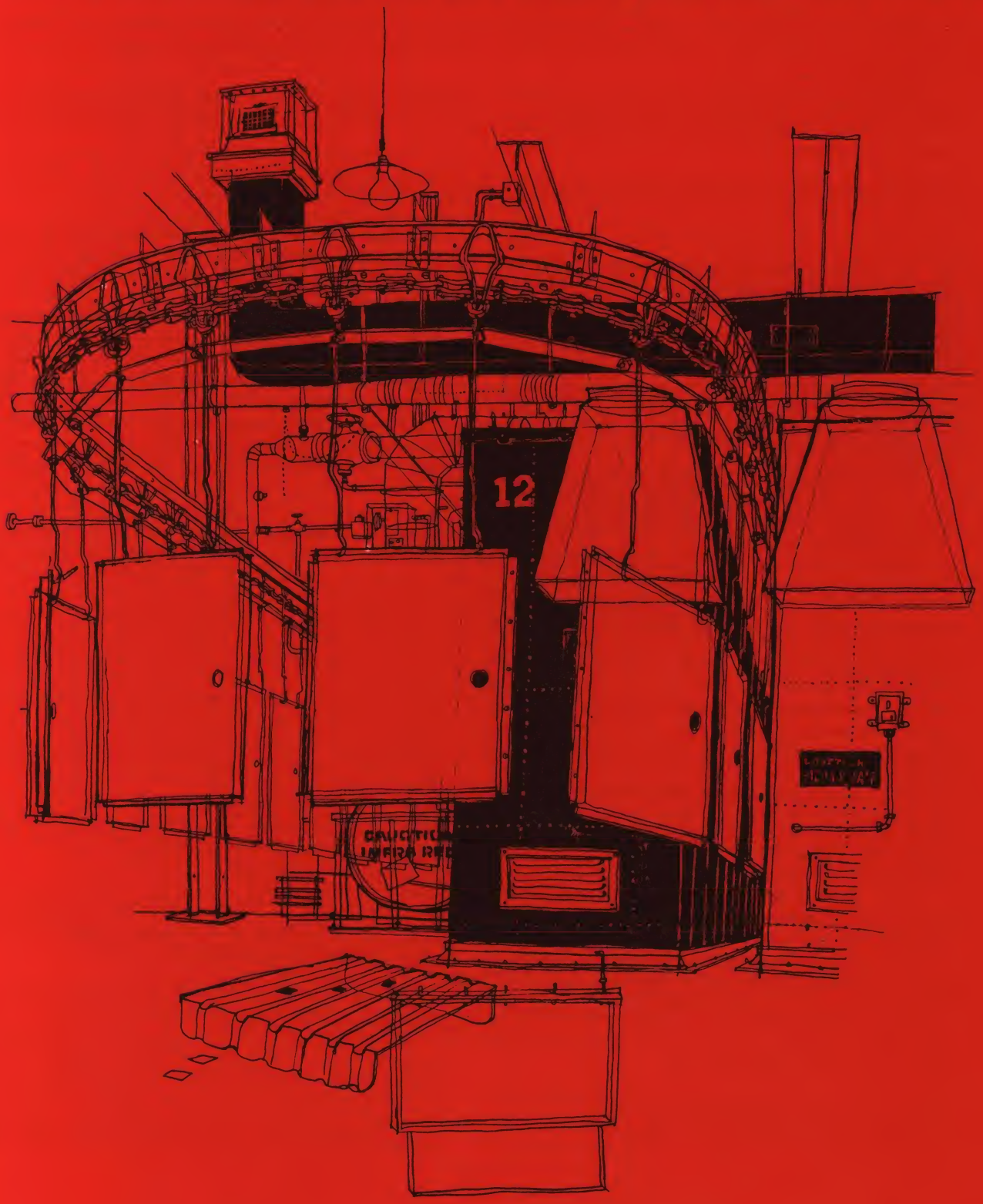
Aluminum's light weight features make porcelainized building products highly desirable. Flat sheets, extrusions, formed shapes, welded assemblies and castings can be porcelain enameled. A broad range of colors is available. These are extremely durable—won't peel or fade, and maintain overall appearance for years.

Porcelain enameled aluminum offers important advantages over enameled steel in fabrication, shipping and handling costs. Because porcelain enamel adheres more effectively to aluminum than to steel, the material provides greater chip resistance and looks nicer, longer. Aluminum's workability on the job and ease of fabrication in the shop, the fact that sheet edges don't rust, plus a weight reduction of as much as two-thirds, are other exclusive benefits aluminum enjoys over steel materials. Refer to Porcelain Enamel Institute, 1145 Nineteenth St., Washington, D. C. Specification Sheet PEI:ALS-105(57) for further information.

BAKED ENAMEL—The field of baked enamels is very broad. For every application of these finishes, there are a number of possible enamels, each with distinct advantages. The types most commonly used are the Alkyds, Epoxies and Acrylics. Generally speaking, the baked enamels are very durable finishes and some approach the qualities of porcelain enamels. They are baked at somewhat lower temperatures, between 300°-500° F., and do not require the high degree of heat control as does porcelain. Baked enamels usually may be fabricated after painting, which imparts economies in manufacturing from sheet and coil stock. The pre-finished material may then be fabricated into siding, roofing or other building panels. Baked enamel on aluminum retains all the inherent advantages of aluminum while adding color and fabrication economies.

PRIMERS—Most painted surfaces require primers or undercoating treatments. In the field of painted aluminum, there are several recommended primers of outstanding quality. Alodine or conversion coating is probably the most widely used. It acts as a coating material to neutralize any reaction between aluminum and the painted surface; while, at the same time, it affords an additional degree of protection against corrosion. Alodine finishes have been used successfully on aluminum without additional paint applications. The high degree of corrosion protection offered by Alodine has made it a particularly adaptable process for industrial application of aluminum, thereby retaining all the weight and fabrication advantages.

FIRING of enamels will vary with the process and materials applied. Though equipment layouts differ from one plant to another, typical firing ovens are equipped with banks of controlling devices and conveyor systems for material handling. Products like coiled stock are continuously painted. This rendering of a paint line illustrates individual products being conveyed to the oven, which is used by some architectural enamelers.



THE ℚ QUALITY CONCEPT: GUIDE FOR SPECIFICATIONS

FOREWORD: The following specifications are designed to assist the specification writer.

In order to secure more accurate bids, a higher class of workmanship, and establish direct responsibility, it is recommended that all aluminum work be specified under one or more special sections of the General Specifications, rather than group such work with other metals under a "Miscellaneous Metals" section.

When responsibility for borderline items is encountered, it is recommended that notes be placed on the drawings, such as: "By O.M.C." (Ornamental Metals Contractor), "By M.S.C." (Metal Specialties Contractor), "By C.W.C." (Curtain Wall Contractor), etc.

Where special applications demand the specification of specific alloys, gauges, finishes, colors, etc. not covered in sufficient detail by the following specifications, please consult your Olin Service Representative who will welcome the opportunity to serve you.

SUGGESTED OUTLINE SPECIFICATIONS

1. General Conditions:

a. The General Conditions of the Contract for the Construction of Buildings, Standard Form of American Institute of Architects, latest edition and the supplementary General Conditions are hereby made a part of this specification to the same extent as if bound herein.

2. Scope of Work:

a. Contract for this portion of the work shall furnish labor, materials and equipment required to complete all aluminum and related work indicated on drawings or specified herein.

b. Work shall include all parts and accessories for variations in construction and fabrication required to complete installation of architectural aluminum work shown on the construction drawings.

c. Sealing, calking, and mastic shall be furnished when required in conjunction with work of this section.

d. Provide necessary Anchors, Fasteners, and inserts when required to complete the installation of all work of this section.

e. Submit Shop Drawings to the Architect for approval before fabrication of work shall begin. All materials shall be appropriately designated and the relationship of work under this section with adjoining work by others shall be clearly shown. Where samples are required, they shall be submitted with the Shop Drawings.

f. Provide protective coatings when required for aluminum work included in this section.

g. Storage of materials shall be provided by the General Contractor in an area free from traffic of other trades and protected from the weather.

(When Curtain Wall is included to the extent that it is desirable to have the Curtain Wall Contractor responsible for the entire wall, it is suggested that a separate section titled "Metal Curtain Wall" be used. This section should include additional items, under scope of work, such as; exterior aluminum doors, entrances, store front work and glass & glazing materials. For more detailed information, write NAAMM, 228 North LaSalle St., Chicago 1, Ill., for "Curtain Wall Manual."

3. Materials:

a. The aluminum material shall be structurally sound, of uniform quality, free from harmful defects, and fully equal to those produced by the Metals Division of Olin Mathieson Chemical Corporation, New York, N. Y. Olin alloys shall be as noted for each product and shall have properties according to the Aluminum Association Specifications.

b. Detached hardware which is exposed shall be aluminum, non-magnetic stainless steel, or other non-corrosive materials which are compatible with aluminum and of sufficient strength to perform the function for which they are intended.

c. Systems or accessories of other qualified manufacturers shall be considered only by written approval of the architect one week prior to the bidding due date.

4. Dissimilar Materials:

a. Aluminum to Dissimilar Metals

Where aluminum surfaces are placed in contact with any dissimilar metals, keep aluminum surface from direct contact with such parts by (1) painting dissimilar metal with zinc-chromate primer or other suitable primer, followed by one or two coats of aluminum metal-and-masonry paint or other suitable protective coating, excluding those containing lead pigmentation, (2) painting dissimilar metal with heavy-bodied bituminous paint, (3) good quality calking placed between aluminum and dissimilar metal, or (4) non-absorptive tape or gasket. Steel anchors and connencting members shall be hot-dip galvanized or zinc-chromate primed after fabrication where economy is essential.

b. Drainage from Dissimilar Metals

Paint dissimilar metals if used in locations where drainage from them passes over aluminum.

c. Aluminum to Masonry

Paint aluminum surfaces in contact with lime mortar, concrete, plaster or other masonry materials with alkaline-resistant coatings, such as heavy-bodied bituminous paint or water-white methacrylate lacquer.

d. 1. Aluminum to Wood

Aluminum in contact with wood or other absorptive materials which may become repeatedly wet and/or when the wood is treated with any form of toxic preservative, the aluminum shall be painted with two coats of aluminum metal-and-masonry paint or coat of heavy-bodied bituminous paint. Alternate: paint wood or other absorptive material with two coats of aluminum house paint and seal joints with a good quality calking compound.

5. Finish:

a. Mechanical finishes, such as polishing, grinding, sanding, etc., shall be done in accordance with the specifications set forth by Olin Aluminum. Samples of specified finishes shall be submitted to the architect for approval.

b. Chemical or Electrochemical finishing shall follow the mechanical finishing and be of specified time and intensity according to exposure.

c. Baked enamel finishes shall be given a chemical conversion treatment prior to the application of enamel. Alcyd, Epoxy, Lucite, or Acrylic finishes shall be baked on after application. Baked enamels may be fired at temperatures lower than 800° F.

d. Porcelain enamel finishes shall be inorganic coatings bonded to metal by fusion at temperatures above 800° F.

6. Fabrication & Workmanship:

a. Before starting work, verify governing dimensions at project site. Examine adjoining work on which the work is in any way dependent for its required installation.

b. All work executed under this section shall be fabricated in a shop where the quality of work is recognized by the industry as meeting the highest standards for work of this type. All mechanics involved shall be skilled in the fabrication of aluminum. Work shall be free from blemishes or defects of any type which would affect its strength, durability, or appearance.

c. Expansion & Contraction

All aluminum work shall be so designed, fabricated and anchored as to permit adequate movement of all parts without causing undue distortion or stresses to build up either in the metal or the anchors (the coefficient of thermal expansion for architectural aluminum alloys is 0.000013 per degree Fahrenheit per unit of length).

d. Protection

After fabrication and prior to shipment, all aluminum surfaces not previously protected shall be given two heavy coats of clear methacrylate lacquer.

e. Finish

1. In so far as practical, all work shall be finished following fabrication. Design of units shall be such that no acids are trapped in recesses and standard rinsing processes will cleanse all surfaces. Aluminum work such as flashings, clips, shims and other applications not exposed to view may be provided with an "as fabricated" finish.

2. Prior to anodizing, all exposed surfaces on work to be anodized shall be finished as follows: (Specify here the type, or types, of surface treatment desired, such as; satin finish, chemical etch, polished, sand blasted, etc.)

3. All exposed aluminum work for interior applications (except for those applications where a special tone or color requires additional anodizing time) shall be anodized for a period of not less than thirty (30) minutes utilizing an electrolytic process with a sulfuric acid electrolyte. The anodic coating so produced shall be not less than 0.0004″ thick, with a minimum coating weight of 17 milligrams per square inch. Recommended procedures for cleaning, degreasing, rinsing, sealing, temperature control, acid concentration, voltage and amperage regulation, etc. shall be followed without deviation during the entire process.

4. All exposed aluminum work for exterior applications shall be anodized for a period of not less than sixty (60) minutes utilizing an electrolytic process with a sulfuric acid electrolyte. The anodic coating so produced shall be not less than 0.0008″ thick, with a minimum coating weight of 35 milligrams per square inch. Recommended procedures, etc. as specified under 3. above shall be followed.

7. Temporary Protection:

a. Aluminum surfaces requiring protection against lime mortar stains, discoloration, surface abrasions and other construction abuses shall be protected by a strippable lacquer or tape coating.

b. Strippable coatings should not be exposed to the sun for extreme periods of time as the thin coating will adhere too tightly to the metal. If such is the case, only wooden or plastic pedals should be used to remove it.

8. Tests:

a. Wear, air infiltration and other tests which may be required shall be performed by a recognized testing laboratory and approved by the architect.

9. Erection:

a. Storage and handling prior to Erection. Aluminum sheets shall be stored on end in a dry place. Do not allow aluminum to come in contact with materials that might cause staining of aluminum, such as water, mud, uncured concrete, cement, lime or other strong chemicals in the presence of moisture. No handling or application method shall be used that will scratch, dent, or mar the aluminum surfaces.

b. No erection shall be started until a field check is made of all work by others which may affect in any way the proper installation of work under this section. Should any defects be found, this Contractor shall notify the General Contractor of such defects in writing and the General Contractor shall be responsible for having the defects corrected by the responsible sub-contractor(s). The starting of erection shall serve as a notice to the General Contractor that a field inspection has been made and that the related work by others is acceptable to this Contractor as being suitable for a proper installation.

c. All work shall be erected under the direct supervision of a qualified representative of the fabricator and in strict accordance with approved drawings.

d. All work shall be erected plumb, square, to proper grade, and in proper alignment with the work of others.

e. Adjustment of the work shall be performed by the manufacturer after completion of the entire job.

10. Final Cleaning:

a. Upon completion, contractor shall clean all aluminum work, removing protective coatings*, cleaning off stains, and restoring damaged surfaces when necessary.

*The lacquer coating may be left on as it will "weather" slowly, eventally vanishing from the surface.

b. Steam cleaning is preferred but any detergent or solvent cleaner may be used. Strong alkaline cleaners should be avoided.

c. A coating of liquid wax or clear methacrylate lacquer should be applied after restoration to preserve the surface and make future maintenance easier.

Note: refer to "Care of Aluminum" published by The Aluminum Association, 420 Lexington Ave., New York 17, N. Y., July 1959.

11. Guarantee:

a. The contractor shall furnish to the owner a written guarantee against any and all defects in workmanship, materials and finish which may appear within a period to one (1) year following acceptance of the work by the architect.

OLIN ALUMINUM

OLIN MATHIESON • METALS DIVISION • 400 PARK AVENUE, NEW YORK 22, NEW YORK

These Olin Aluminum sales offices are staffed for service, ready and ready to help you with your architectural problems.

AKRON 1
(1 block from Perkins Square)
JEfferson 5-3465

ATLANTA 9
(Just West of Peachtree Street N.W.)
TRinity 5-0221

BALTIMORE
(9 West Pennsylvania Avenue)
P. O. Box 6014, Towson, Maryland
VAlley 3-1458

BIRMINGHAM 6
2951 South Avenue Bx
FAirfax 3-4411

BOSTON
(81 Washington Street)
P. O. Box 96, Newton 93, Mass.
DEcatur 2-7500

CHARLOTTE 2
2201 W. Davidson Street
P. O. Box 5205
FRanklin 5-7106

CHATTANOOGA
(Rite Construction)
P. O. Box 1698
AMherst 7-4861

CHICAGO 38
2500 N. Cicero Avenue
COrnelia 7-2844, DRexel 3-4000

CINCINNATI 6
1210 E. McMillan Street
CAnal 1-6020

CLEVELAND 13
55 Public Square, Room 802
PRospect 1-4414

DALLAS 26
100 Exchange Park North
EVergreen 7-1201

DAVENPORT
111 East 3rd Street
Tel. No. 3-8251

DAYTON 2
348 W. First Street
BAldwin 6-2951

DENVER 20
2279 E. Colfax
FLorida 5-0471

DETROIT
3101 W. Woodward Avenue
Royal Oak, Mich.
LIncoln 9-4500

GRAND RAPIDS 2
5 Lyon Street N.W.
GRandale 8-1356

HOUSTON 24
2724 Long Point Rd.
OVerbrook 2-3963

INDIANAPOLIS 4
1350 W. Morris St.
MAdison 6-7813

KANSAS CITY 12
612 W. 47th Street
PLaza 3-2055

LOS ANGELES 5
3243 Wilshire Blvd.
DUnkirk 8-3201

LOUISVILLE 7
3501 Westport Road
TAylorcrest 6-0527

MIAMI 38
1101 N.W. 79th St.
P. O. Drawer B, Little River Station
PLaza 7-0655

MILWAUKEE 2
500 N. Milwaukee Ave.
BRoadway 6-8200

MINNEAPOLIS 2
321 Marquette Ave.
FEderal 8-6922

NEW HAVEN 4, CONN.
275 Winchester Ave.
SPruce 7-1481

NEW YORK 22
625 Madison Ave.
PLaza 1-4510

OMAHA 3
4016 Farnam Street
CApitol 2250

PHILADELPHIA
3 Bala Ave., Bala Cynwyd, Pa.
MOhawk 4-6100

PITTSBURGH 19
429 Fourth Ave.
GRant 1-3855

SAN FRANCISCO 4
268 Montgomery St.
YUkon 2-0424

SEATTLE 1
1807 Seventh Avenue
MAin 4-6363

SOUTH BEND 1
108 N. Main St.
CEntral 3-6737

ST. LOUIS 6
111 South Bemiston Ave.
PArkview 6-0247

SYRACUSE 3
726 James St.
GIbson 2-7651

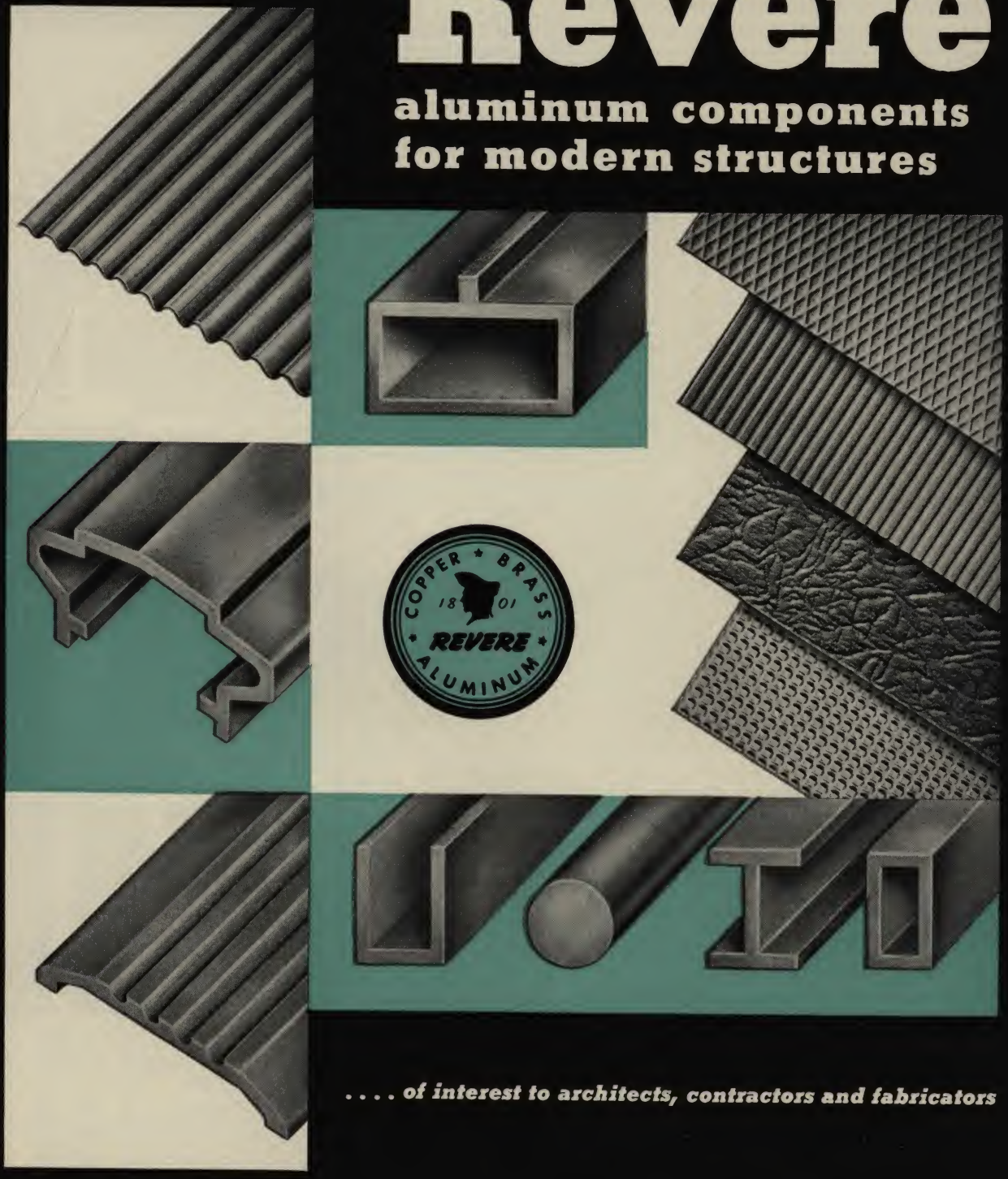
TULSA 3
4407 S. Peoria Avenue
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WICHITA 2
150 N. Main Street
AMherst 2-8702

EXECUTIVE OFFICES
400 Park Avenue
New York 22, N. Y.
PLaza 1-7227

Revere

aluminum components for modern structures



. . . . of interest to architects, contractors and fabricators

Revere Copper and Brass Incorporated
1960

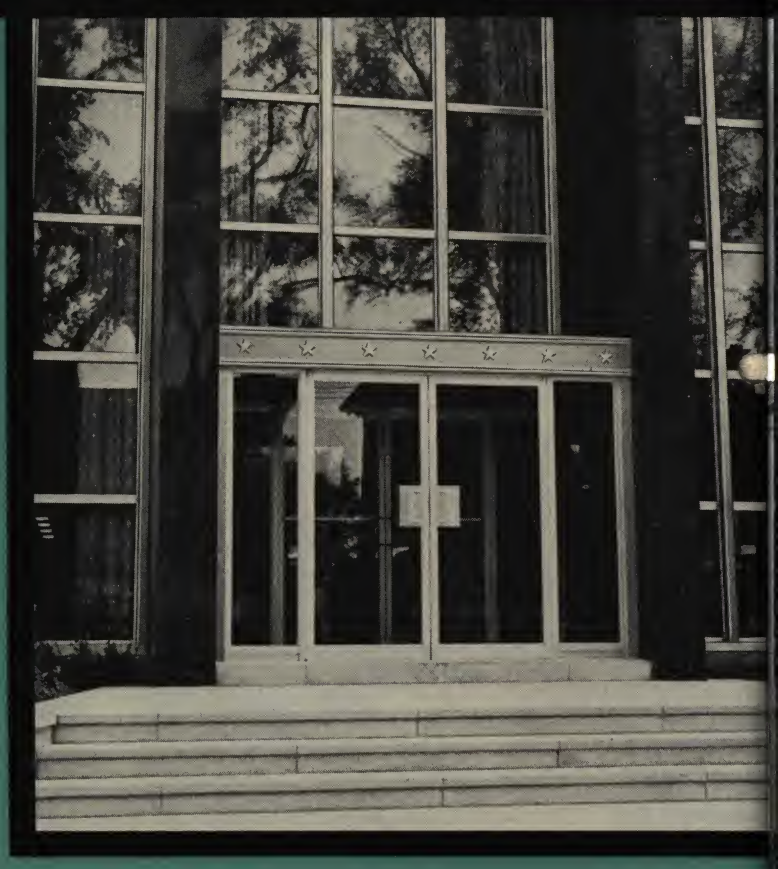
the increasing use of aluminum components in modern structures

Revere aluminum—in its new structural forms—takes its place today as a major building material. In fact, the Revere structural components present—to the architect, contractor and fabricator—a host of welcome opportunities for creating new forms, new effects, new structural beauty. Consequently, these aluminum components are playing a highly influential role in determining the shape and texture... even the color... of contemporary architectural design.

Because these aluminum components combine so many important attributes—strength, corrosion resistance, abrasion resistance, light weight, fascinating finishes, permanent colors—they are being specified for an ever-expanding scope of structural uses. Today, these aluminum components embrace virtually the whole gamut of basic shapes: structural angles and channels... thresholds and door jambs... roofing, siding and store fronts.

Today, whole buildings are encased in soft, silvery aluminum. Their entrances, their windows, their heating and cooling ducts, their hardware, their lighting fixtures, their partitions, even their bas-relief decoration—all are fashioned from this versatile wonder metal: *aluminum*.





fascinating textures, colors

Fortunately, these aluminum structural components can "take" a wide variety of revolutionary treatments—to produce an entirely new array of fascinating finishes: simple satin textures... brilliant anodized colors... coatings that increase durability, assure longer life especially in harmful atmospheres. The architect has a whole new world of interesting, highly practical, effects at his command.

Revere: a principal source

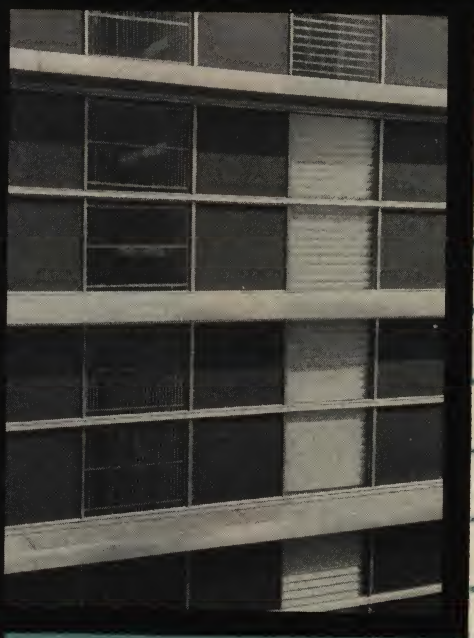
Revere aluminum structural components reflect more than progressive thinking, constant research and quality-controlled production techniques. These components reflect over a century and a half devoted to the production, fabrication and use of non-ferrous metals. No wonder Revere truly knows its A-B-C's in metals: A for aluminum ... B for brass... C for copper. Thus, Revere is rightfully one of the nation's leading sources for quality aluminum.

Revere Copper and Brass Incorporated









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the important advantages of Revere aluminum structural components

There is a definite reason why Revere aluminum structural components are so rapidly becoming "part and parcel" of contemporary architectural design. The reason is not entirely relatively low cost and ready availability.

The reason is inherent, fundamental: *their unique combination of attributes* . . . a combination found in no other commercial building materials. Just a mere recital of the characteristics of these components is impressive. They are light in weight—yet, when fabricated from certain alloys, have the strength of structural steel. They retain high resistance to both corrosion and abrasion under the majority of service conditions. Their appearance, even in their natural (as-fabricated) form is pleasing, blends well with other structural materials. And these components can be transformed in both texture and color by a variety of finishes. Further, they have no toxic reaction on food. They have high thermal (and electrical) conductivity, high reflectivity to both heat and light. The three characteristics most important from the structural designer's viewpoint are explained at right.

the true cost

The true, year-after-year cost of these aluminum components is not difficult to figure. Because of their inherent freedom from maintenance . . . because of their ease of fabrication . . . because of their light weight and consequent ease of assembly and erection . . . because of their ready acceptance of finishes—the first cost of these Revere structural components is their *last* cost. And this initial cost is competitive with that of other comparable structural components. Further, these components do not require any maintenance, no initial or subsequent painting.

No wonder progressive architects, contractors and fabricators have come to regard Revere aluminum as a standard structural material.

resistance to corrosion

Revere aluminum components, by their nature, oxidize. But this oxidation is *protective;* it builds itself up to form a hard coating against further weathering.

This coating is, in reality, a tough oxide film, essentially transparent, non-progressive, non-flaking, non-destructive and self-healing. Then, after a few years—even in industrial or seacoast atmospheres—this oxidation process slackens considerably. Tests show that the depth of this oxide coating is not appreciably deeper at the end of twenty years than at the end of two years. This is of prime importance when considering metal components for exterior application.

Consequently, Revere aluminum components can be used with complete assurance that, in resistance to corrosion, they will remain superior to components of any other commercial structural metal . . . that they will not form color salts that stain adjacent surfaces.

Because of this assured long life and this inherent freedom from maintenance, Revere aluminum components are today specified for an ever-expanding variety of structural applications—even in severe industrial and seacoast atmospheres.



reduction in weight

One of the most dominant attributes of Revere aluminum structural components is their inherent light weight. They are lighter than masonry or other metal components generally used in construction. In fact, aluminum weighs approximately one-third, by volume, of other commercial metals. It gives three times as much area coverage as other commercial metals of equal thickness. This light weight is particularly pertinent to structural design—just as it is to product, aircraft and transportation equipment design. It makes possible many important (and often overlooked) advantages—and many important savings in cost:

First of all, these components are decidedly easier to handle, to transport, to erect. This is a particularly important factor when installing the larger components such as sheet, corrugated roofing and siding, spandrels. As a rule, a large section can easily be carried by one man.

Then, because of this reduced dead load, these aluminum components permit lighter supporting structures. This reduces not only the cost of the supporting structure, but also increases the speed of erection.



pleasing appearance

This attribute—smooth, soft, silvery appearance—is, of course, an important reason Revere aluminum components are selected for so many applications that must have, and retain, eye appeal. For, these components—even when their natural finish is oxidized to a soft lustre—keep their fresh appearance, their smooth-to-the-touch texture.

The new patterns of Revere embossed sheet—by creating interesting shadow lines—are actually fascinating, especially when used for wall panels, partitions and doors. Further—and highly important—Revere aluminum components, due to their trim design, blend admirably with other building materials: brick, concrete, terrazzo, polished wood, marble, glass—also with both interior and exterior plantings. However, these Revere aluminum components are not limited in their appearance to the natural, as fabricated finish. Fortunately, they "take" a host of special treatments and coatings.

Consequently, Revere aluminum structural components—because of their new worlds of texture and color—offer the architect, contractor and fabricator wide design freedom, wide opportunity for creating rich, yet dignified effects.



the wide variety of successful finishes applicable to aluminum structural components

Aluminum structural components in their natural (as-fabricated) finish are, by their inherent nature, both pleasing in their soft, silvery texture and highly resistant to corrosion and abrasion. The oxide film that forms is thin, transparent—yet protects the surface against ordinary conditions and weathers to a pleasing, uniform finish. For certain applications—such as flashings, roofing, siding—this natural (mill) finish is entirely satisfactory.

However, for decorative effects and particular conditions, these salient attributes—pleasing texture, resistance to corrosion, abrasion—can be increased materially by special treatment, special finishing. Then, these important structural components become still more attractive in appearance... still more serviceable in fulfilling their functional duties ...still more versatile in their structural applications.

Fortunately, aluminum "takes" a wide variety of finishes. These finishes divide into six major groups: mechanical, chemical, electrochemical, electroplated, porcelain enamel, paint and lacquer.

Revere aluminum structural components shown in this catalog can be specified with any of the finishes described in this section. However, certain finishes are not advisable on certain components—due to use or exposure of the components, processing limitations or unnecessary excessive cost. It is therefore recommended that architects, contractors and fabricators, with problems in finishing, avail themselves of the Revere Technical Advisory service—and the Revere network of sales offices—as explained in section 13.

1 mechanical finishes

Aluminum structural components are readily improved, in both appearance and utility, by a variety of mechanical finishes. These finishes are easily attained and are comparatively low in cost. They are produced by abrading the components to make their surfaces either rougher (as in scratch finish) or smoother (as in polished finish). They are generally used either to provide a pleasing surface texture, or to form a pretreated base for subsequent finishes.

There are seven mechanical finishes particularly applicable to Revere aluminum components:

1a ground This is a preliminary "trimming down" finish. It is generally used on aluminum forged, cast and welded components:

- to remove large portions of excess metal
- to smooth down surface imperfections
- to reduce castings and forgings to approximate size

This preliminary ground finish has a coarse texture which is not particularly pleasing in appearance. It is generally followed by another mechanical finish.

1b polished This finish, virtually the same as on other metals, is generally applied to aluminum components:

- to increase surface lustre
- to remove surface fabricating imperfections

This polished finish is attained by abrading the aluminum components with a sequence of progressively finer abrasives.

1c buffed This finish is even more lustrous, more brilliant than the polished finish. It is produced in the same way—with a sequence of progressively finer buffing agents (generally tripoli powder). The final finish is often called "color buffed"—because the aluminum takes on such a high gloss that it is highly reflective (although the color of the aluminum is not changed).

1d scratch This is a highly popular finish for aluminum structural components. It is sometimes called "wire brush" finish. It varies in appearance from a narrow, shallow-lined texture (particularly applicable to aluminum sheet) to a coarse, rough texture. Basically, this scratch finish is produced on structural components for two definite functions:

- to present an interesting, decorative surface texture, pleasing to both eye and touch
- to obscure surface imperfections incurred during fabrication of the components

1e satin This is a soft, smooth finish – with a satin-like sheen and low reflectivity.

1f abrasive-blasted This is a uniform matte finish. It is easily and inexpensively produced on aluminum components by blasting with various abrasives. It is used for two purposes:

- to give a pleasing, muted finish
- to provide a pre-treated surface for subsequent anodic or paint finishes

This abrasive-blasted finish, due to the variety of blasting materials used, produces on the aluminum components various color casts—such as light grey and light blue.

Because this abrasive-blasted finish is, by nature, a rough finish, it retains dirt particles. Consequently, it is usually given a protective coating, either lacquer or clear varnish, or an electrochemical finish.

1g hammered Aluminum components with this finish resemble hand-hammered silver or other metals.

2 chemical finishes

A wide variety of surface finishes – either highly interesting or highly protective – are easily, economically produced on aluminum components by chemical treatment. Certain of these treatments retain the silvery color of the aluminum, but add fascinating textures – from soft muted "feel" to striking brilliance. Other treatments give a decided color cast to the aluminum or actually change its color with dyes. Still others, generally patented processes, increase the corrosion resistance and provide a sound working base for subsequent coatings.

There are seven generally used chemical processes:

2a alkaline-etched This sparkling, silver-white finish – often called "frosted" – is the most widely used of the chemical finishes. By varying the sodium hydroxide (caustic soda), various degrees of "frost" – including the popular matte frost are easily attained. This alkaline etched finish is selected for three definite purposes:

- to provide a uniform "frosted" surface texture, pleasing to both eye and touch
- to remove the glare of untreated surfaces
- to obliterate surface scratches and imperfections

2b acid-etched This finish resembles the alkaline-etched matte finish. It is used on aluminum components for specific reasons:

- to provide a muted matte texture
- to obliterate heat-treatment stains
- to deep-etch designs upon the aluminum surfaces

2c oxide coated This type of finish, usually produced by patented chemical processes, is available in a variety of unusual textures. These finishes are applied principally for their decorative value. They range in color from gray-green to practically black or can be colored with dyes (like the electrochemical finishes).

2d metallic coated This finish consists of a thin coating of certain metals – such as tin, brass, silver – on the aluminum components. It is both protective and pleasing in appearance. It is attained by galvanic action in special solutions.

2e bright dip This highly attractive finish has a brilliant, mirror-like lustre and a smooth, specular surface. Because this finish is attained chemically – by immersion in a special acid reagent – it is generally applied to shapes too irregular or curved for mechanical finishes. This bright dip finish is particularly successful when applied to components which have been polished or buffed (see 1b and 1c) – and are then protected by a clear anodic coating (see 3a).

2f phosphate coated This type of finish, attained by various patented processes, is a protective phosphate coating on the surface of the aluminum component. Because this phosphate-coating is insoluble, this finish is used for two important reasons on aluminum components:

- to increase the resistance to corrosion
- to provide an excellent base for the adhesion of paint or other coatings

2g chromate coated This type of finish, attained by several patented processes, is, in reality, a surface film of aluminum chromate. This film, converted by the action of the processes, is generally used for two purposes:

- to increase the resistance to corrosion
- to provide a sound base for the adhesion of paint or other coatings

Because this finish generally has a gold-to-brown color that is not always uniform, it is used principally as a paint base where color differences are not a factor.

3 electrochemical finishes

Electrochemical finishes are finding considerable application on aluminum structural components. They provide finishes not attainable by other methods. They are, naturally, more expensive than the mechanical and chemical finishes. There are three principal types:

3a anodized The highly versatile anodic finishes—applicable only to aluminum—are, in essence, a thin, inert aluminum oxide coating which remains tightly adherent to the base aluminum. These finishes are dense, tough and hard. They will not chip or peel.

They are characterized by their unique metallic lustre which is either transparently clear or opaquely colored in a fascinating range of highly pleasing hues. Yet these anodic coatings retain the texture of the aluminum on which they are electrochemically formed.

As these anodized finishes are, by their nature, microscopically porous, they are highly receptive to dyes and inorganic pigments. Consequently, these finishes are obtainable in a full spectrum of colors—or can be treated to resemble gold, brass, bronze, copper or other metals. The colors become an integral part of the metal surface.

Thus, these anodized finishes are today widely used in finishing aluminum structural components:

- to obtain a brilliant, highly attractive lustre—either clear or colored
- to provide stout protection against weathering, abrasion, corrosive attack, wear
- to protect other types of finishes (such as satin, buffed)—yet retain their textures
- to provide a hard, smooth surface that resists dirt collection and simplifies cleaning.

These anodic finishes are attained by a simple electrochemical procedure. The aluminum article to be finished is made the anode (rather than the cathode as in electroplating). An electrolyte capable of releasing oxygen is selected. In the anodizing reaction, this oxygen is deposited on the aluminum article and immediately reacts with the aluminum to form aluminum oxide. This aluminum oxide, it is important to remember, becomes integral with the surface of the metal. After the process is completed, the pores of the finish are closed by a simple sealing.

Consequently, these anodized finishes provide wide opportunity for creating new effects—in lustres, textures and colors. They are widely used on components subject to weather, constant abrasion, difficult atmospheres . . . to components that must be easy to clean and maintain . . . and especially to components that require a permanently beautiful lustre, either clear or colored. Hence, these anodized finishes are specified for such structural components as windows, doors, spandrels, panels.

3b electro-polished This finish, attained by various patented procedures, is similar to the bright dip finish (see 2e)—but has a decidedly higher light reflectivity. In fact, this finish is capable of reflecting 85% of the incident light. It achieves a specular surface that is remarkably smooth, depression-free and highly polished. If protected with an anodic finish and cleaned regularly, it retains this high polish practically indefinitely.

3c hard-coat This type of finish—attained by either the Martin or Sanford process—is similar, in most respects, to the anodized finishes (3a). Its coating, however, is decidedly thicker, extremely hard and strongly bonded to the base aluminum. It has superior wearing characteristics. Consequently, this hard-coat finish is applied principally to components requiring unusually stout resistance to wear, abrasion and corrosion. It is unusually successful in severe industrial and seacoast atmosphere. It is finding wide use on aluminum components used on marina installations.

Because this hard-coat finish is not particularly pleasing in appearance, it is not used for its decorative value.

4 electroplated finishes

These finishes, when applied to aluminum structural components, are both highly successful and economically practical. They permit the electrodeposit of a variety of metals—such as copper, brass, chromium, nickel, cadmium—for attaining the desired surface characteristics. For the most part, these electroplated finishes are specified for two purposes:

- to obtain interesting decorative effects—with metals of colors and textures different from those of aluminum
- to obtain certain characteristics—resistance to wear, abrasion, corrosion—better suited than those of aluminum to certain applications

These electroplated finishes, if the procedures are correctly handled, can even be used on cast and wrought aluminum alloys.

5 porcelain enamel finishes

These finishes, in essence, are hard, glossy, opaque coatings of vitreous compositions of fritted glass and pigments. These compositions are fused to the surface of the aluminum by firing at temperatures over 800 F.

These porcelain enamel finishes are highly resistant to impact, flexing and thermal shock. On aluminum, these finishes, because they are thinner and have tighter adhesion, show better resistance than when fused to other metals. They are highly resistant to acids and alkalies. They actually increase the rigidity of the aluminum base. These porcelain enamel finishes are available in a full range of gloss from dull matte to a brilliant lustre. They are applicable to a variety of surface textures. In addition, these porcelain enamel finishes when correctly fused, are readily fabricated. There is practically no exposure of the aluminum base. And there is no spalling, no cause for discoloration. They permit welding on the reverse side.

Consequently, porcelain enamel finishes are today widely used on aluminum structural components — panels, curtain walls, store fronts, trim, sanitary compartments, signs.

6 paint and lacquer coatings

Aluminum, when properly prepared, is easier to protect with paint or lacquer coatings than are most competitive metals. These paint and lacquer coatings are also widely used for decorative effects. They are low in cost. The various methods of application are basically the same as for other metals. The finishes most extensively used include oil base paints, bituminous paints, synthetic resin finishes, long oil varnishes and enamels, aluminum paint, and fast-drying lacquers.

6a organic coatings

Organic coatings, highly developed in recent years, are particularly effective in their resistance to both corrosion and abrasion. They are generally low in cost. Three of these organic coatings are used, with unusual success, on aluminum structural components. The transparent types are used to preserve the natural (as-fabricated) or the applied finish of the aluminum.

6b alkyd paint This dry-baked coating combines high resistance to weathering with a wide variety of permanent colors. It takes processing operations without chipping. It is therefore widely used on such exposed applications as sheet, either plain or embossed, to be fabricated into outdoor awnings and other exposed architectural members.

6c vinyl paint This coating, whether clear or pigmented, is used on structural members which, in forming, must maintain their properties and finish. It is therefore used on such applications as roll-formed screen frame sections. The pigmented coatings are somewhat transparent and produce a semi-metallic effect on the aluminum component. The most successful color is pale green—but green gold, blond, coppertone, gray, blue and rose are also available.

6d vinyl-alkyd paint This coating, available in all colors, is used on aluminum structural members that require unusual flexibility during forming. It is therefore specified for such applications as lock-seam tubing.

standard shapes

for construction

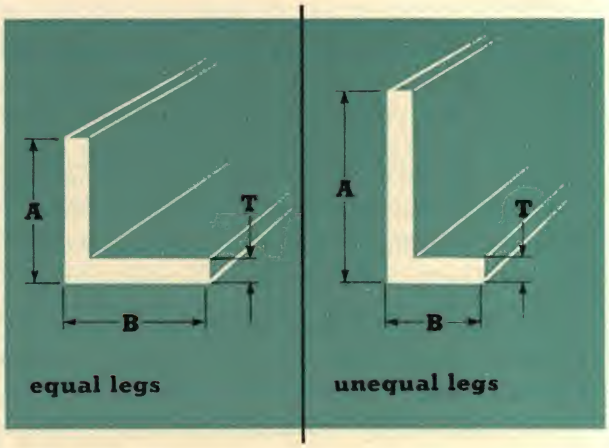
Revere aluminum standard shapes are particularly designed for construction projects. They open to the architect, contractor and fabricator wide opportunities for developing new forms, new effects, new beauty—and permanent economies—in contemporary architecture.

These standard shapes are easily combined to form structures decidedly in stride with today's concepts of clean, functional architectural design.



angles

with square corners

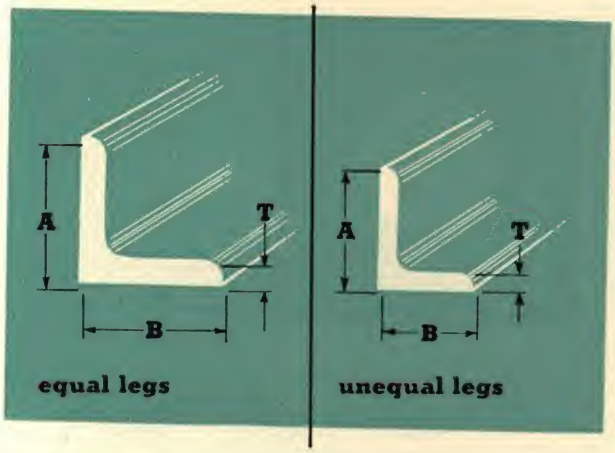


alloy: 6063-T5
standard length: 16 ft

length of legs A, in.	length of legs B, in.	thickness T, in.	weight (est) lb/ft	die number
equal legs				
½	½	1/16	.071	A- 489
		⅛	.131	□
⅝	⅝	⅛	.169	A-3983
¾	¾	1/16	.107	A-7424
		⅛	.206	A- 513
1	1	1/16	.145	A-1805
		⅛	.281	A- 511
		3/16	.408	A-3407
1¼	1¼	⅛	.356	A-3816
		3/16	.521	A-3538
1½	1½	⅛	.431	A-1044
		3/16	.632	A-3830
1¾	1¾	⅛	.506	□
2	2	⅛	.581	A-2709
		3/16	.857	□
		¼	1.124	□
unequal legs				
¾	⅜	3/32	.116	□
1	½	3/32	.158	□
		⅛	.206	□
1	¾	⅛	.244	A-4984
1¼	½	⅛	.244	A-3821
1½	¾	⅛	.319	□
	1	⅛	.356	A-1380
2	1	⅛	.431	A-1376
3½	1¼	⅛	.694	□

□ die number not yet assigned

with round corners

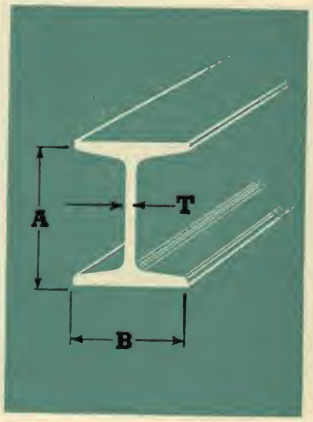


alloy: 6061-T6
standard length: 20 ft

length of legs A, in.	length of legs B, in.	thickness T, in.	weight (est) lb/ft	die number
equal legs				
¾	¾	⅛	.20	A-3872
1	1	⅛	.27	A- 957
		3/16	.40	A-3873
1¼	1¼	⅛	.35	A-2807
1½	1½	3/16	.62	A- 954
1¾	1¾	3/16	.73	A-6119
2	2	3/16	.84	A-2762
		¼	1.11	A-2699
2½	2½	¼	1.41	A-3979
3	3	3/16	1.29	A-5946
		¼	1.68	A-5947
		⅜	2.47	A-3909
4	4	¼	2.28	A-7785
		⅜	3.36	A-7787
unequal legs				
3	2	¼	1.40	A-3876
4	3	¼	1.99	A-3908

I-beam

American standard

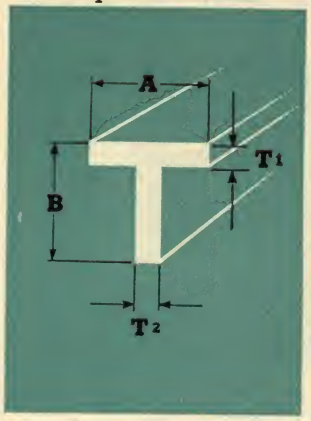


alloy: 6061-T6
standard length: 20 ft

height A, in.	width B, in.	thickness T, in.	weight (est) lb/ft	die number
3	2.33	.170	1.96	A-7379
4	2.66	.190	2.64	A-5986
5	3.00	.210	3.42	A-4024

tee

with square corners

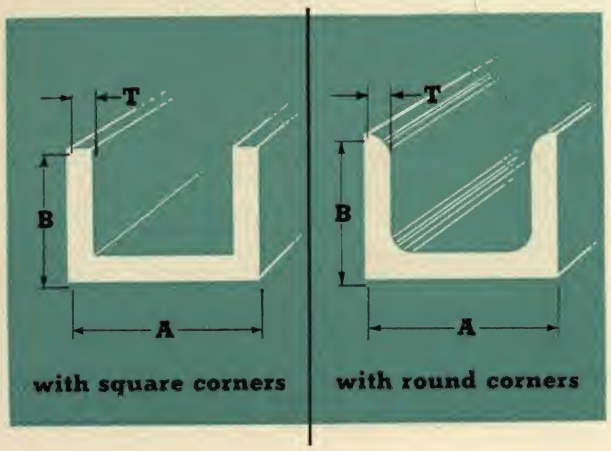


alloy: 6063-T5
standard length: 16 ft

width A, in.	height B, in.	thickness T1, in.	thickness T2, in.	weight (est) lb/ft	die number
¾	¾	⅛	⅛	.169	A-1338
	1¼	⅛	⅛	.280	□
⅞	1¼	5/32	⅛	.328	□
1	½	⅛	⅜	.319	□
	¾	⅛	⅛	.244	□
	1	⅛	⅛	.281	A-1339
1¼	⅞	⅛	⅛	.300	□
2	¾	⅛	⅛	.394	□

□ die number not yet assigned

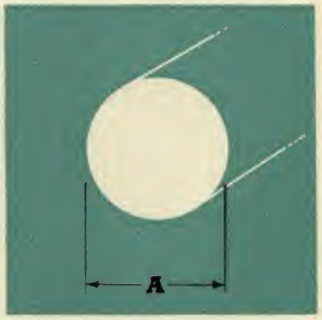
channels



width A, in.	height B, in.	thickness T, in.	weight (est) lb/ft	standard length, ft	die number
with square corners: alloy 6063-T5					
½	⅜	⅛	.150	16	□
	½	3/32	.148	16	A-3248
	¾	⅛	.263	16	□
⅝	⅝	⅛	.244	16	□
¾	⅜	⅛	.188	16	A-1342
	¾	⅛	.300	16	A-3188
1	½	⅛	.263	20	A-3815
	1	⅛	.413	16	A-6543
1¼	½	⅛	.300	16	□
	1¼	⅛	.526	20	□
1 7/16	½	3/32	.251	20	□
1½	½	⅛	.337	20	A-5301
1¾	½	⅛	.374	16	□
	¾	⅛	.450	16	A-4997
	1	⅛	.524	16	A-1015
2	½	⅛	.413	16	□
	1	⅛	.563	20	A-1375
2¼	⅞	⅛	.563	20	A-3187
2½	1½	⅛	.787	22	□
3	½	⅛	.563	16	□
	1	⅛	.713	16	A-8037
5	2	3/16	1.940	16	□
with round corners: American standard, alloy 6061-T6					
4	1.58	.180	1.84	20	A-3879
5	1.75	.190	2.31	20	A-5976
6	1.945	.225	3.00	20	A-3911
8	2.29	.250	4.25	20	A-5977
10	2.6	.240	5.28	20	A-5978

□ die number not yet determined

rod

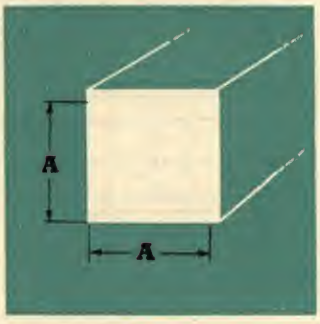


alloy: 6063-T5

standard length: 16 ft

diameter A, in.	weight (est) lb/ft	die number
½	.235	A- 680
⅝	.368	A-1353
¾	.530	A- 444
1	.942	A-4246

square bar

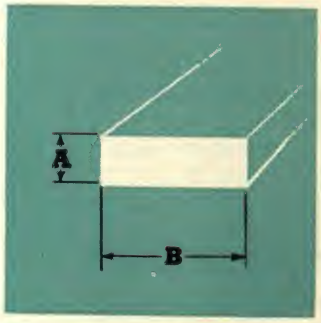


alloy: 6063-T5

standard length: 16 ft

height and width, A, in.	weight (est) lb/ft	die number
⅜	.169	A- 926
½	.300	A- 420
⅝	.468	A- 415
¾	.674	A-1225
1	1.200	A-4262
1¼	1.875	A- 373
1½	2.700	A-1657

rectangular bar

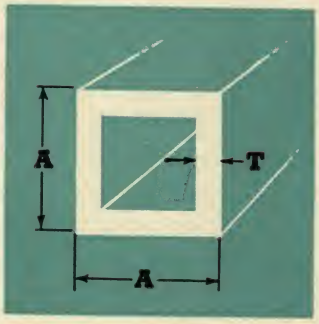


alloy: 6063-T5
standard length: 16 ft

thickness A, in.	width B, in.	weight (est) lb/ft	die number
1/8	3/4	.113	A-1417
	1	.150	A-1325
	1 1/4	.187	A-1369
	1 1/2	.225	A-7774
	1 3/4	.263	□
	2	.300	A-2772
3/16	1/2	.113	A-1327
	3/4	.169	A-1328
	1	.225	A-1549
	1 1/4	.281	A-1329
	1 1/2	.338	A-1330
	1 3/4	.394	A-1550
	2	.450	A-1229
	2 1/2	.562	□
1/4	1/2	.147	□
	5/8	.187	A-1438
	3/4	.225	A-1598
	1	.300	A- 835
	1 1/4	.375	A-1331
	1 1/2	.450	A-4256
	1 3/4	.526	A-4597
	2	.600	C-6604
	2 1/2	.750	A-5923
	3	.900	A-3381
3/8	1/2	.225	A-1333
	5/8	.278	□
	3/4	.337	A-3064
	1	.450	A-1374
	1 1/4	.563	A-1766
	1 1/2	.676	A-3151
	2	.900	A-2774
	3	1.350	□
1/2	3/4	.450	A-4771
	1	.600	A- 927
	1 1/4	.750	A-2777
	1 1/2	.900	A-2778
	2	1.200	A-2779
	2 1/2	1.500	A-2780
	3	1.800	A-2781
3/4	1 1/2	1.350	A-2786
	2	1.764	□
1	1 1/2	1.818	□
	2	2.400	□

□ die number not yet determined

square tube

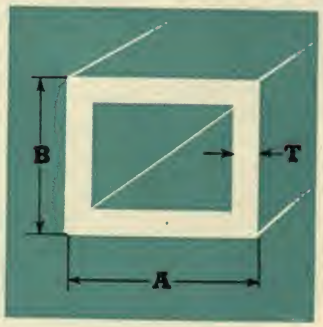


extruded • square corners
alloy: 6063-T5
standard length: 21 ft, 1 in.

height and width A, in.	thickness T, in.	weight (est) lb/ft	die number
5/8	1/16	.168	A-8860
3/4	1/16	.205	A-8861
7/8	1/16	.242	A-8862
1	1/16	.280	A-7999
	1/8	.524	A-8938
1 1/2	1/8	.826	□
1 3/4	1/8	.975	A-3356
2	1/8	1.126	A-8212

□ die number not yet determined

rectangular tube



extruded • square corners
alloy: 6063-T5
standard length: 21 ft, 1 in.

width A, in.	height B, in.	thickness T, in.	weight (est) lb/ft	die number
2	1 3/4	1/8	1.050	A-7926
2 1/4	1 1/2	1/4	1.950	A-4515
	1 3/4	1/8	1.126	A-6893
3	1 3/4	1/8	1.350	A-6894
4	1 3/4	1/8	1.650	A-3357
	2	3/16	2.538	A-7983
4 1/4	1 5/8	1/8	1.687	A-8353
	2	1/8	1.800	A-5363
4 1/2	1 3/4	1/8	1.800	A-6901
5	1 3/4	1/8	1.950	A-7020
	2	1/8	2.026	A-5362
	3	3/16	3.431	A-8785

entrances and store fronts

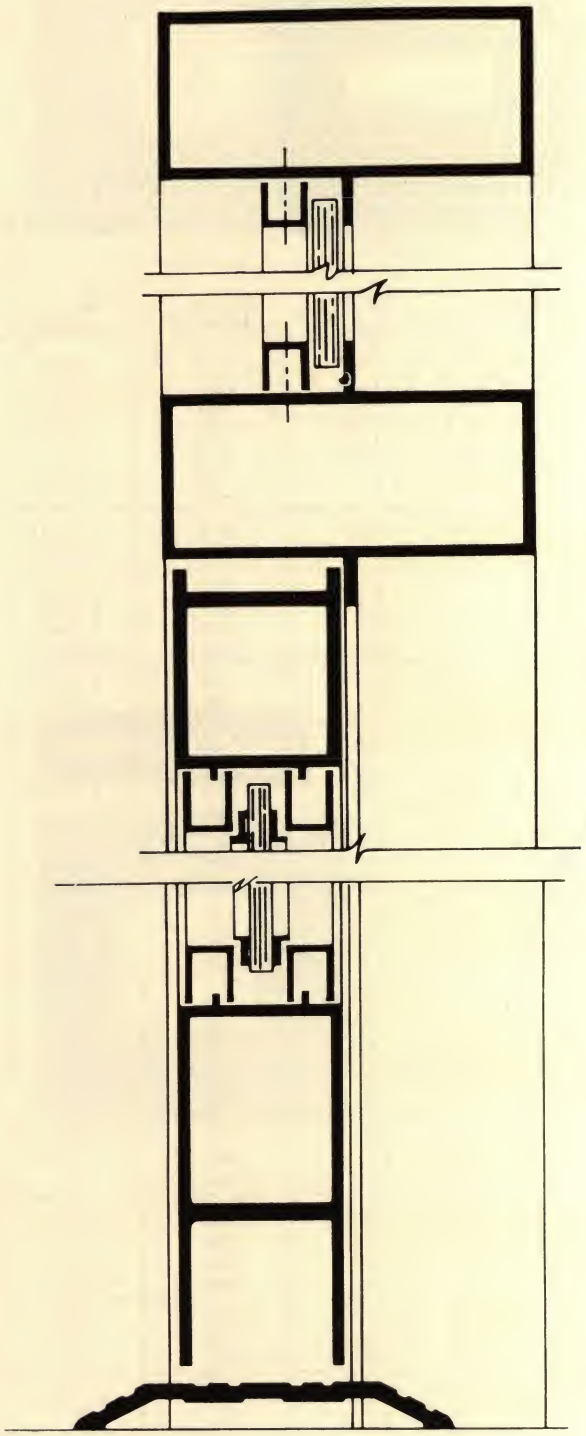
Revere basic components for entrances and store fronts are extruded from aluminum alloy 6063-T5, fully proved for architectural application. These basic components are highly versatile, readily adaptable to a practically unlimited field of application. They are easily combined with astragals, glazing bars, push bars, hardware—to form entrance frames, doors and show windows of clean design and simplicity.

These basic components assure both uniformity and precision of execution—also clean architectural line. Yet—as shown in the typical application details at right—they are highly versatile.





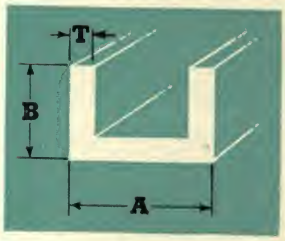
methods of application



components

alloy: 6063-T5

channel



standard length: 16 ft

width A, in.	height B, in.	thickness T, in.	weight (est) lb/ft	die number
½	⅜	⅛	.150	□
½	½	3/32	.148	A-3248
¾	¾	⅛	.300	A-3188
1½	1½	⅛	.637	A-7414

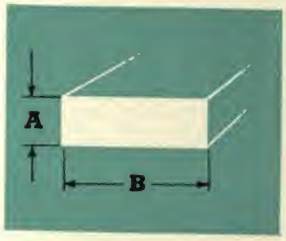
round rod



standard length: 16 ft

diameter: 1 in.
weight (est): .942 lb/ft
die number: A-4246

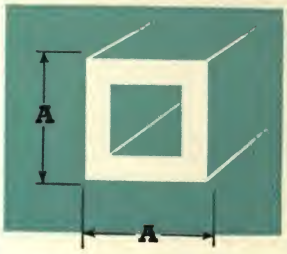
rectangular bar



standard length: 16 ft

thickness A, in.	width B, in.	weight (est) lb/ft	die number
¼	½	.149	□
½	1	.600	A- 927
½	1½	.900	A-2778
½	2	1.200	A-2779

square tube

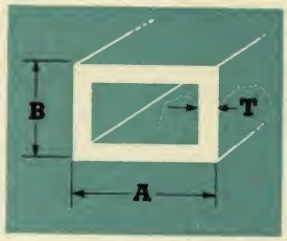


standard length: 21 ft, 1 in.

width and height A, in.	thickness in.	weight (est) lb/ft	die number
1	⅛	.524	A-8938
1¾	⅛	.975	A-3356
2	⅛	1.126	A-8212
4	⅛	2.294	□

□ die number not yet assigned

rectangular tube



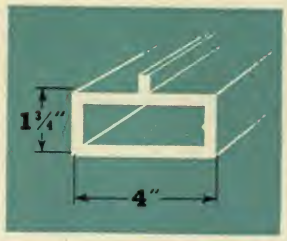
standard length: 21 ft, 1 in.

width A, in.	height B, in.	thickness T, in.	weight (est) lb/ft	die number
4¼	1⅝	⅛	1.687	A-8353
2	1¾	⅛	1.050	A-7926
2¼	1¾	⅛	1.126	A-6893
3	1¾	⅛	1.350	A-6894
4	1¾	⅛	1.650	A-3357
4½	1¾	⅛	1.800	A-6901
5	1¾	⅛	1.950	A-7020
4¼	2	⅛	1.800	A-5363
5	2	⅛	2.026	A-5362
5	3	3/16	3.431	A-8785
1¾	4½ •	⅛	1.950	A-6902

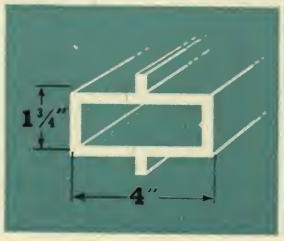
• with stop

rectangular tube with fins

standard length: 21 ft, 1 in.



single
width: 4 in.
height: 1¾ in.
weight (est): 1.726 lb/ft
die number: A-7103

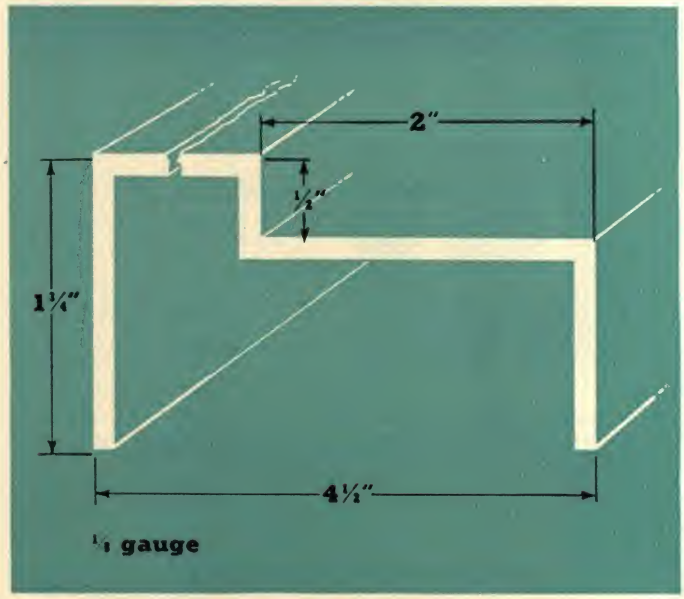


double
width: 4 in.
height: 1¾ in.
weight (est): 1.800 lb/ft
die number: A-7104

door jambs

Revere aluminum door jambs are highly stylized in their clean, crisp design. They are definitely in stride with today's design trends—and blend admirably with virtually all building materials and color schemes. They are extruded from alloy 6063-T5, well proved for architectural applications. The jamb detailed at right is typical of the wide variety of designs available. Standard length: 16 ft.

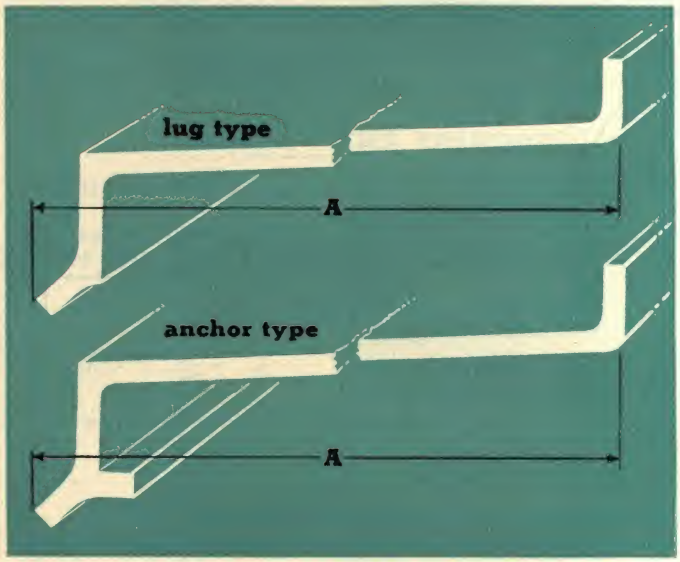




window sills

Revere aluminum window sills are especially designed to provide weathertight protection over masonry openings. They are extruded from aluminum alloy 6063-T42, well established as a highly satisfactory architectural metal. Consequently, these window sills are uniform in cross-section, free from staining adjacent materials—and easy to install. They are used with window sash of aluminum, steel or wood. Standard length: 20 ft.





type	width A, in.	thickness T, in.	weight (est) lb/ft	die number
lug	5 1/2	1/8	.992	A-1295
	6	1/8	1.060	A-1294
anchor	5 1/2	1/8	1.051	A-7258
	7 9/16	5/32	1.399	A-7259

railings

Revere aluminum railings not only offer wide opportunity for a variety of pleasing effects—but also prove highly practical for virtually all types of interior and exterior applications.

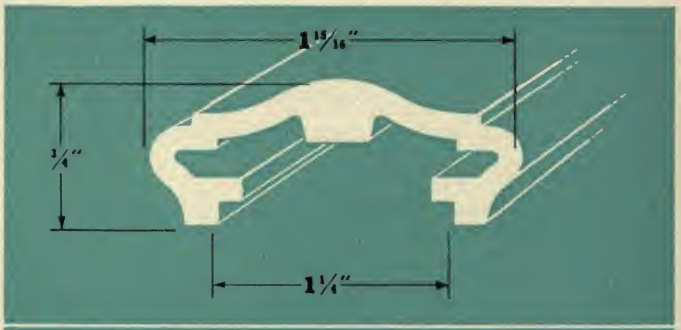
The three ornamental designs at the right are particularly suitable to applications requiring a traditional style. They are extruded from alloy 6063-T5, in 20-foot standard lengths.

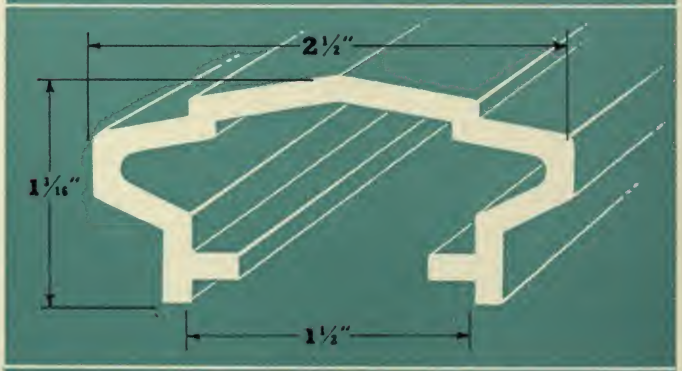
The stock pipe, rod, rectangular bar and rectangular tube are readily combined to form a variety of highly stylized railings, definitely compatible with today's architectural trends; see section 3 for sizes and dimensions.

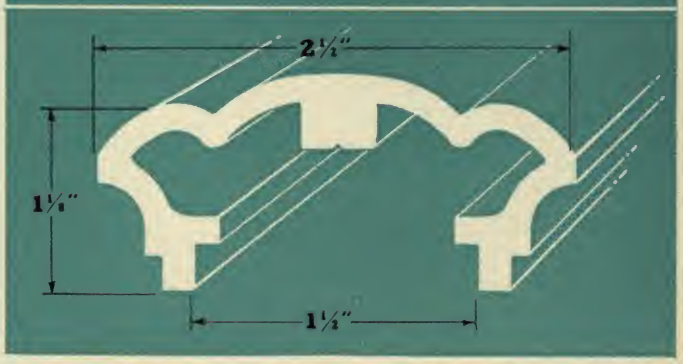




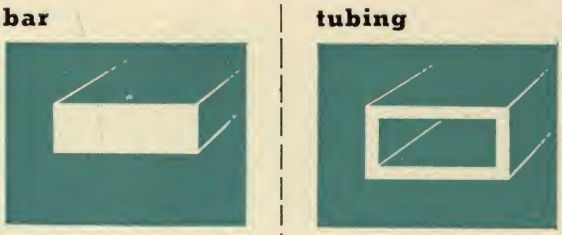
extruded shapes











thresholds

Revere aluminum thresholds are particularly designed to reduce the possibility of slippage at entryways; to resist the wear of constant foot traffic; to receive weather stripping; to compensate for variation in floor level due to interior floor coverings.

Because these thresholds are extruded from aluminum alloys 6063-T5, well proved for architectural applications, they remain strong, free from staining, uniform in cross-section from end to end. In addition, these thresholds—due to their neutral, non-contrasting color—harmonize with virtually any building material and any color scheme. They are easy to install.

standard length: 16 ft., 3 in.



weatherstrip type

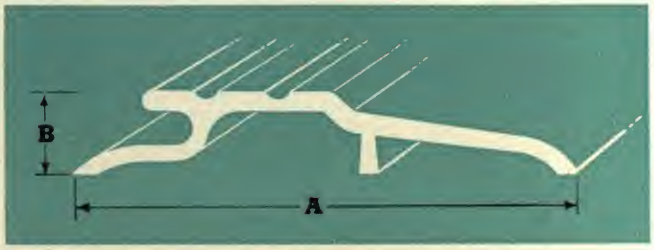
These thresholds, designed to accommodate various types of weatherstripping, are the interlocking design. They are designed with flanges or undercuts—to dovetail with contours at the base of the door. This tight interlock provides a barrier against wind and moisture.

weatherstrip type 1



die number: A966

weatherstrip type 2



width A, in.	height B, in.	weight (est) lb/ft	die number
3 1/2	9/16	.624	A-2015
4 1/2	5/8	.732	A-270

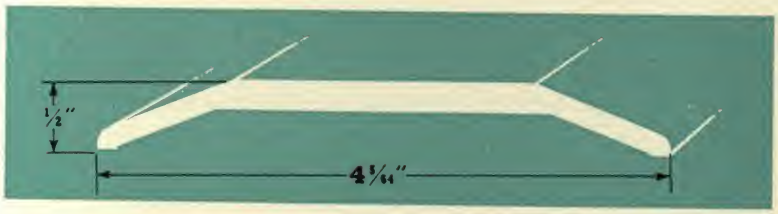
saddle type

saddle type 1



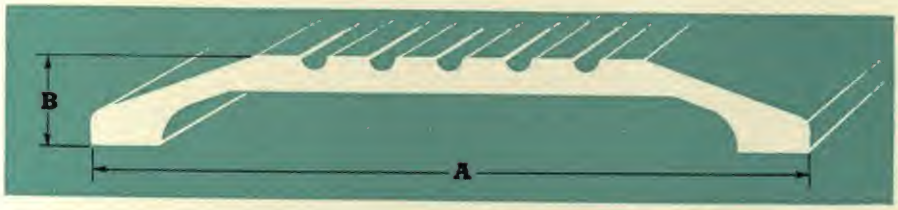
die number: A-2018

saddle type 2



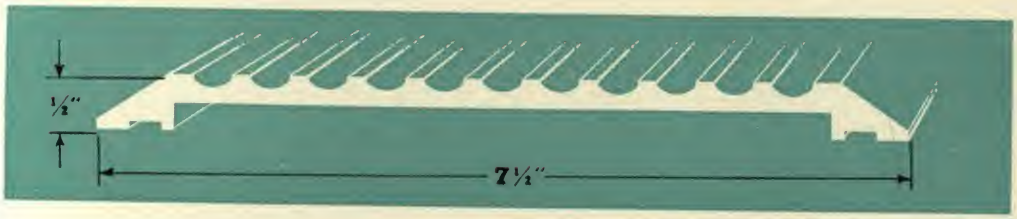
die number: A-2016

saddle type 3



width A, in.	height B, in.	weight (est) lb/ft	die number
3 1/2	1/2	.768	A- 756
4	1/2	.828	A-1499
5	1/2	1.104	A-4782
7	1/2	1.734	A-3395

saddle type 4



die number: A-6520

sheet/plain/embossed

Revere aluminum sheet—both plain and embossed—takes its place as a standard, highly versatile building material. Because of its unique combination of properties, this sheet is widely used for both structural and decorative applications—in commercial and industrial buildings, in hotels, motels and airports, in schools, churches, and of course in homes.

In fact this highly versatile sheet is not limited to traditional uses such as roofing and siding. Today it is opening new design horizons—on such applications as canopies, solar shading (both vertical and horizontal), wall facings (particularly when formed into interlocking profiles), curtain walls, ventilating ducts—and, of course, gutters and downspouts. In addition, this aluminum sheet, because of its inherent light weight, permits both lighter foundations and lighter structural framework. This light weight likewise permits larger—and consequently fewer—structural units; this means fewer field joints and reduced erection time.

This aluminum sheet, of course, requires practically no maintenance. It remains virtually unaffected by time, the elements, or wear.

plain

Revere plain aluminum sheet in its fabricated (mill) form has a natural attractive finish which eventually weathers to a pleasing, uniform gray. It is recommended for curtain walls and other applications where low cost is an important factor. The plain sheet, however, can be given a variety of finishes to provide interesting textures and further protection against corrosion and abrasion. These finishes include frosted, matte, polished, scratched—and the popular anodized finishes, either clear or in color. For highly colorful effects, this plain aluminum sheet can be coated with porcelain enamel in an unlimited range of colors (see section 3).

embossed

Revere embossed aluminum sheet—in the patterns shown on the opposite page—offers unusual opportunity for striking, interesting effects, particularly of large flat areas. These embossed patterns, by creating shadows, give a rich, textural depth to the sheet. Because these patterns are actually rolled into the sheet, they are permanent; they cannot lose their shape or wear off; they retain their attractive textures. Further, these embossed patterns increase the stiffness of the sheet—but do not affect its workability.

The patterns shown on the opposite page are embossed on both sides. Consequently, each side has a slightly different texture.

This embossed aluminum sheet, like the plain, can be given a variety of finishes. It can be anodized, either clear or in color. And it can be coated with porcelain enamel in an unlimited range of colors.

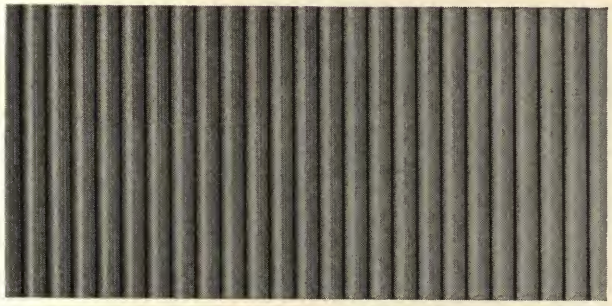
dimensions, plain and embossed

gauge, in.	sizes, in. 24 x 96	36 x 96	36 x 120	36 x 144	48 x 96	48 x 120	48 x 144
.016	x	x					
.020		x	x				
.025		x	x		x	x	
.032		x	x	x	x	x	x
.040		x	x	x	x	x	x
.050		x	x	x	x	x	x
.063		x	x	x	x	x	x

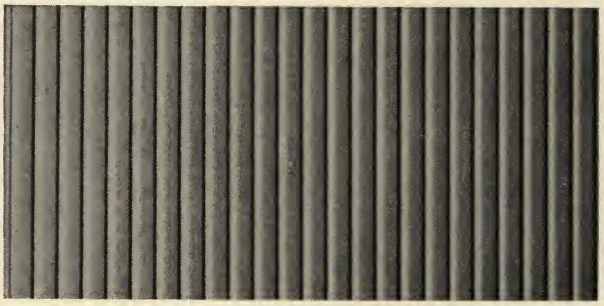
temper: 3003H-14

embossed patterns

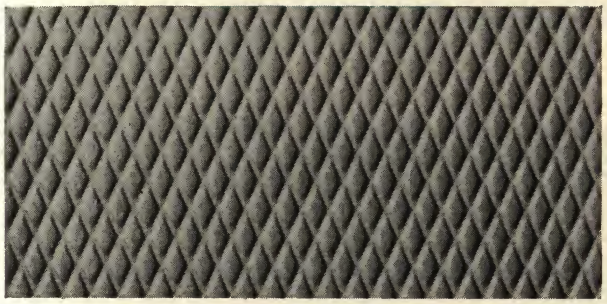
fluted pattern REV 12



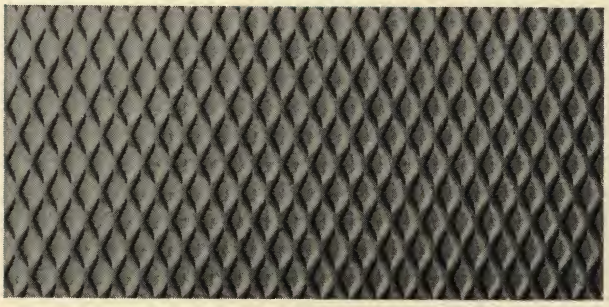
ribbed pattern REV 12



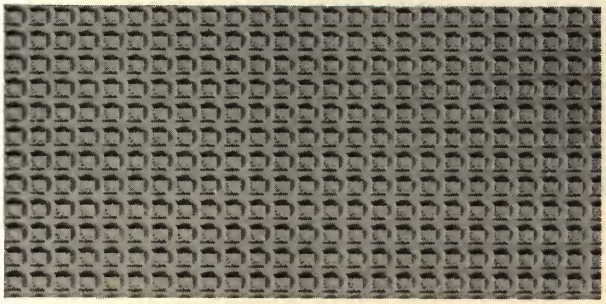
diamond, raised pattern REV 13



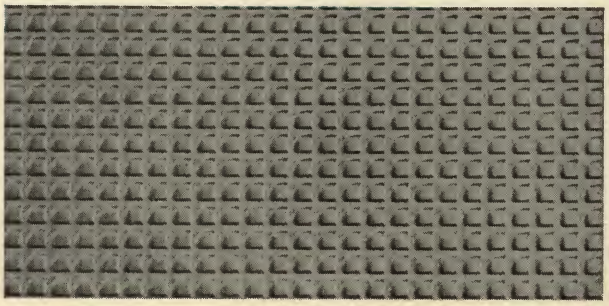
diamond, indented pattern REV 13



square, raised pattern REV 14



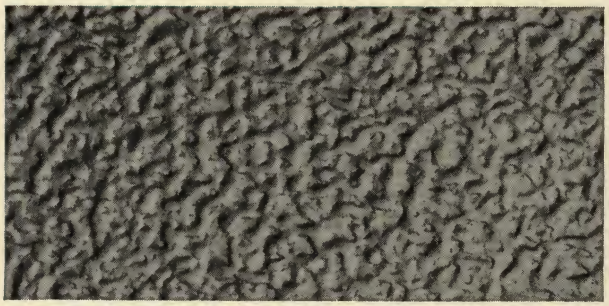
square, indented pattern REV 14



leather pattern REV 15



stucco pattern REV 5



Alclad corrugated roofing and siding

Because of its long service life, its freedom from maintenance — and its clean, trim eye-appeal — Alclad corrugated roofing and siding is taking an important place on the industrial horizon. Today, this versatile, yet basically economical material is protecting all types of industrial buildings, equipment housings, warehouses, hangars, passageways. It is also finding entirely new fields of application—sheathing for entire buildings, terminals, hospitals, stadia, schools...also as permanent decorative treatment in a variety of buildings.

The reason this Alclad roofing and siding is developing so many applications is the unique combination of attributes it adds to its permanent, attractive appearance:

high resistance to corrosion Alclad corrugated roofing and siding is, in reality, a "sandwich." Its core of high-strength aluminum alloy is protected on both sides by a cladding of virtually pure aluminum — to provide the greatest possible corrosion resistance.

high developed strength Alclad corrugated roofing and siding develops sufficient strength to carry heavy uniform loads. The corrugations prevent buckling.

easy erection Due to its inherent light weight, Alclad corrugated roofing and siding assures fast, easy erection. It is easy to handle, transport and put in place. And it requires lighter supporting structure.

thermal reflectivity The highly reflective surface of Alclad roofing and siding prevents most of the sun's heat from entering the building. This is particularly advantageous in reducing interior temperatures.

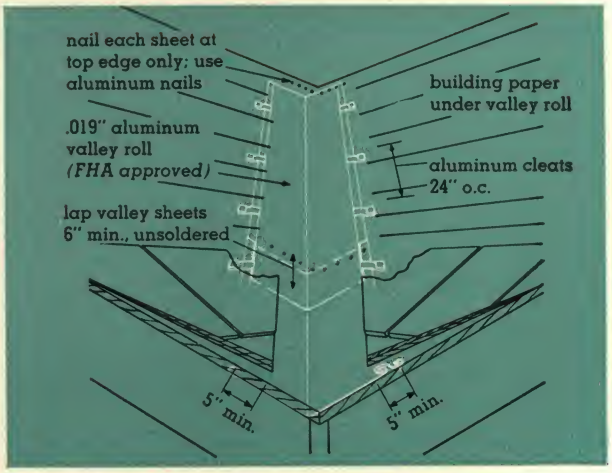


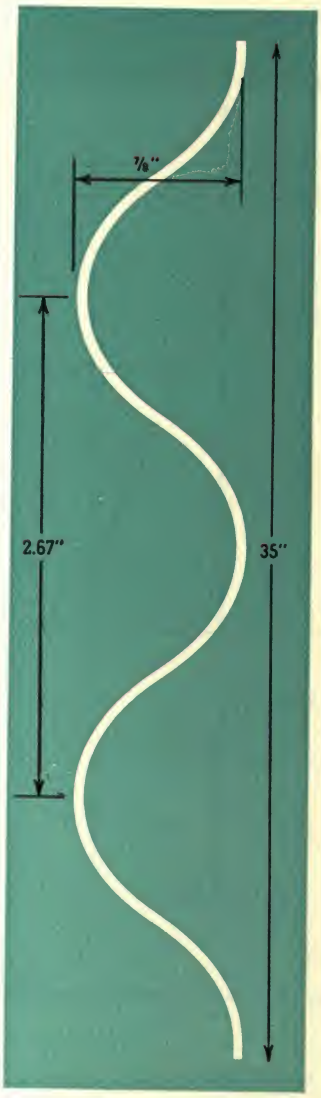


valley roll

Revere aluminum valley roll is particularly designed for permanently sealing both open and closed valleys. Because of its inherent light weight, it is easy to handle, transport and install. Because of its high resistance to corrosion, it does not require weather protection. For open valleys, it is installed in 8-ft lengths. For closed valleys, it is cut into separate pieces as long as the diagonal of the shingle at the valley—and built in with each course of the shingles.

This Revere aluminum valley roll is generally furnished in .019-in. thickness, FHA approved. Also furnished in .016-in. thickness.





specifications

length of sheet ft	roofing over-all width: 35 in. coverage per sheet sq ft	sheets per square (100 sq ft)	weights per sheet, lb .024-in.	.032-in.	siding over-all width: 33¼ in. coverage per sheet sq ft	sheets per square (100 sq ft)	weights per sheet, lb .024-in.	.032-in.
5	14.58	6.86	6.03	8.04	14.06	7.11	5.82	7.76
5½	16.04	6.23	6.64	8.85	15.47	6.46	6.40	8.54
6	17.50	5.71	7.24	9.65	16.87	5.93	6.98	9.31
6½	18.96	5.27	7.84	10.46	18.28	5.47	7.56	10.09
7	20.42	4.90	8.45	11.26	19.69	5.08	8.15	10.87
7½	21.88	4.57	9.05	12.07	21.09	4.74	8.73	11.65
8	23.33	4.29	9.65	12.87	22.50	4.44	9.31	12.42
8½	24.79	4.03	10.26	13.68	23.91	4.18	9.89	13.20
9	26.25	3.81	10.86	14.48	25.31	3.95	10.48	13.97
9½	27.71	3.61	11.46	15.29	26.72	3.74	11.06	14.75
10	29.17	3.43	12.07	16.09	28.12	3.56	11.64	15.52
10½	30.63	3.26	12.67	16.90	29.53	3.39	12.22	16.30
11	32.08	3.12	13.28	17.70	30.94	3.23	12.80	17.08
11½	33.54	2.98	13.88	18.51	32.34	3.09	13.38	17.86
12	35.00	2.86	14.48	19.31	33.75	2.96	13.97	18.63

thicknesses: .024 and .032 in.

widths:

roofing

over-all: 35 in.
covering: 32 in. (lap of 1½ corrugations)

siding

over-all: 33¾ in.
covering: 32 in. (lap of 1 corrugation)

lengths: 5 to 12 ft in 6-in. increments

corrugations:

depth: ⅞ in.
pitch: 2.67 in. center to center

weight (approx):

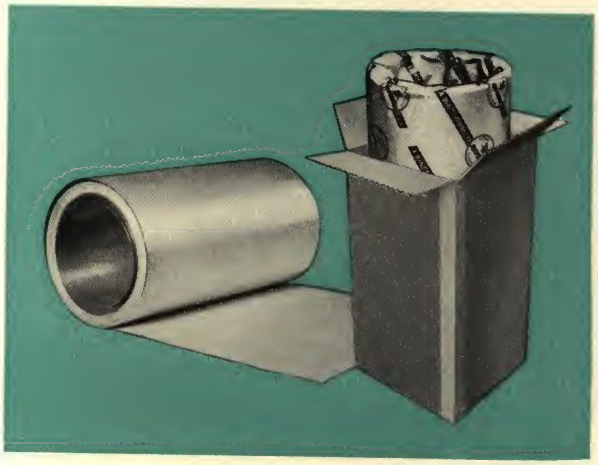
per 100 sq ft, formed
.024-in.: 41 lb
.032-in.: 55 lb

finishes: plain mill and stucco embossed

color: natural

spacing of supports

recommended spacing of purlins and girts, ft	safe uniform load (max) lb/sq ft .024-in.	.032-in.
3½	79	106
4	60	80
4½	48	63
5	39	50
5½	32	41
6	27	35
6½	23	29
7	20	25
7½	17	22



width in.	no. coils per carton	weight per coil, lb .016-in.	.019-in.
3	4	2.8	3.4
6	2	5.6	6.7
7	2	6.6	7.8
8	2	7.4	8.9
10	2	9.4	11.7
12	1	11.3	13.5
14	1	13.2	15.6
16	1	14.9	17.9
18	1	16.9	20.1
20	1	18.8	23.4
24	1	22.6	27.0
28	1	26.3	31.3

characteristics of Revere structural aluminum alloys

Revere aluminum structural components are not all made from the same aluminum alloy. Instead, each component is fabricated in the alloy and temper most suitable to its intended use, finishing and exposure. Consequently, there are three alloys generally used for these structural components—one in the non-heat-treatable (3000) series; two in the heat-treatable (6000) series.

In order that the architect, contractor and fabricator may have a clear understanding of the general characteristics, application and typical properties of these three alloys in their most usable tempers, their general description is given below—and their mechanical and physical values in the table at right.

alloy 3003

This non-heat-treatable alloy has the corrosion resistance of commercial purity aluminum—yet, due to its 1% manganese, it has higher mechanical properties. It also has good forming characteristics.

alloy 6061

This heat-treatable alloy, due to the addition of silicon and magnesium, combines medium strength, good formability with excellent corrosion resistance.

alloy 6063

This alloy is also heat-treatable, due to the addition of silicon and magnesium. It combines all the desirable characteristics of alloy 6061 but it is lower in strength and cost.

typical properties of aluminum alloys used in fabricating Revere structural components

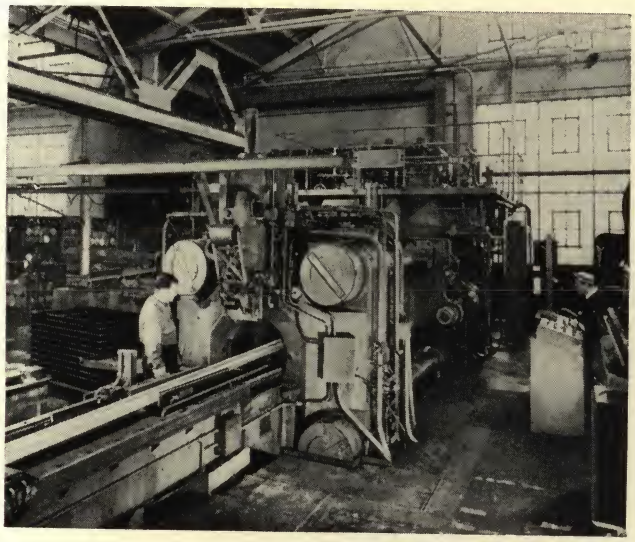
Revere alloy		strength, psi		elongation, % in two inches	
no.	temper	ultimate	yield	specimen 1/16 inch thick	specimen 1/2 inch diameter
3003	H14	22,000	21,000	8	16
	H154	—	—	—	—
6061	T6	45,000	40,000	12	17
6063	T5	27,000	21,000	12	—
	T42	22,000	13,000	20	—

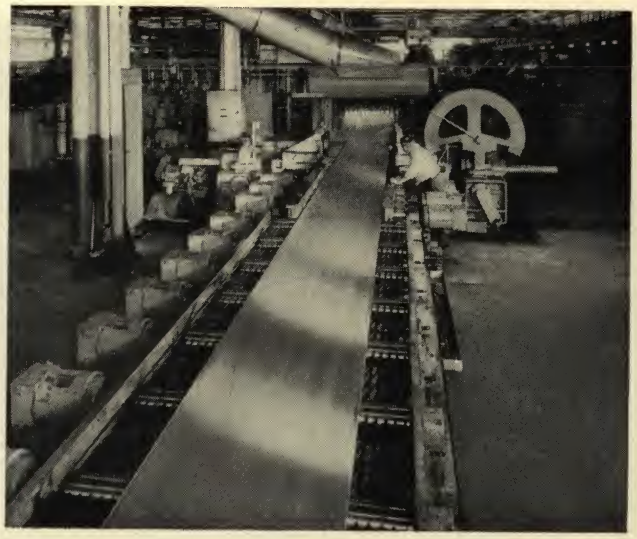
the Revere assurance of quality

In order that the inherent qualities of these aluminum alloys—of all Revere products, in fact—may be uniformly maintained, Revere stresses constant improvement of its fabricating techniques—constant inspection throughout all its plants, through all its processes. The fabricating and testing facilities pictured at right are typical of the ever-expanding Revere plants and laboratories. Their advanced methods assure dependable uniformity of Revere products. No wonder Revere aluminum in the form of its structural components—is taking its place as a major structural material!

hardness	shearing strength	fatigue	modulus of elasticity[2]	thermal conductivity at 25C (77F)		electrical conductivity at 20C (68F) % IACS		density		specific gravity	coefficient of thermal expansion
Brinnell 500 kg load 10 mm ball	(ultimate) psi	endurance limit[1] psi	psi x 10^6	cgs[3] units	English[4] units	equal volume	equal weight	lb/cu in.	lb/cu ft		68 to 212 F average per
40	14,000	9,000	10.0	.38	1100	41	134	.099	170	2.73	0.0000129
—	—	—	—	—	—	—	—	—	—	—	—
95	30,000	14,000	10.0	.37	1070	40	132	.098	169	2.70	0.0000131
60	17,000	10,000	10.0	.48	1390	53	175	.098	169	2.70	0.0000130
42	14,000	9,000	10.0	.46	1340	50	165	.098	169	2.70	0.0000130

[1] based on 500,000,000 cycles of completely reversed stress, using the RR Moore type of machine and specimen
[2] average of tension and compression moduli; compression modulus is about 2% greater than tension modulus
[3] CGS units = cal/cm/cm^2/°C/sec.
[4] English units = btu/in/ft^2/°F/hr.





REVERE standard structural components are available through a network of selected distributors

Revere plants, mills and sales offices span the nation from coast to coast. To supplement these production and sales facilities, Revere also maintains a nationwide network of carefully selected distributors to service the needs of the building and construction industry.

Builders, contractors, architects and engineers know they can depend on the quality of Revere Aluminum Products. With over a century and a half devoted to the fabrication of non-ferrous metals Revere truly knows its A-B-C's in metals. A for aluminum, B for brass, C for copper.

Quality Control Protects Customer

Revere quality represents a standard of excellence which is consistent and controlled at every step in the production process. In addition to sound metals, skillful fabrication and careful inspection techniques, Revere has developed a special system of quality control. Controlled testing and inspection at each stage in the fabricating of standard structural components insures close maintenance of quality.

Prompt Service, Speedy Delivery

Revere is interested in supplying to every customer products that meet his specific requirements. This is particularly true of the standard structural components Revere supplies to the building and construction industry through its network of competent, dependable distributors. Call the nearest Revere distributor for prompt service and speedy delivery.

Consultation a Phone Call Away

As you will see by glancing at the map on the right, Revere plants and offices are conveniently situated to service distributors and customers in all sections of the United States. Expert mill technicians and competent sales representatives are never more than a phone call away. They stand ready to serve you—should such help be needed.

technical advisory service available through

your local REVERE distributor . . .



Revere Technical Advisors are available, through your local distributor of standard structural components, for consultation on all problems relating to metals. These men are engineers, thoroughly conversant with and trained in the uses of metals. Their function is liaison between Revere and its customers. Their experience and access to many sources of information enables them to collaborate effectively with customers in solving problems customers can't solve by themselves.

In this way, the Revere Technical Advisory Service has helped many manufacturers to lower production costs and improve product quality. This fund of technical knowledge and scientific know-how is yours for the asking. Simply call upon your nearest Revere distributor to put you in touch with a Revere Technical Advisor, when faced with your next metals problem.



tag



label

Revere Copper and Brass Incorporated

Executive Offices: 230 Park Avenue, New York 17, N. Y.

Phone: MUrray Hill 9-6800 *Teletype: NY 1-1222* *Cable address: REVERECOP—New York*

division offices and mills:

	telephone
mill products	
Baltimore Division	
P.O. box 2075, 1301 Wicomico Street, Baltimore 3, Md.	*Vernon 7-0500*
Dallas Division	
2200 North Natchez Avenue, Chicago 35, Ill.	*Merrimac 7-2600*
Clinton Tube Plant—P.O. box 112, Clinton, Ill.	*Clinton 1000*
Michigan Division	
5851 West Jefferson Avenue, Detroit 9, Mich.	*Vinewood 1-7350*
New Bedford Division	
24 North Front Street, New Bedford, Mass.	*Wyman 8-5601*
Pacific Coast Division	
P.O. box 3246, Terminal Annex, 6500 East Slauson Avenue	
Los Angeles 54, Calif.	*Raymond 3-3331*
Santa Ana Plant—3131 S. Bristol Street, Santa Ana, Calif.	
Rome Division	
P.O. box 151, Rome, N. Y.	*Rome 2000*
manufactured products	
† **Clinton Manufacturing Division**	
P.O. box 112, Clinton, Ill.	*Clinton 1000*
† **Sales Headquarters**	
2200 North Natchez Ave., Chicago 35, Ill.	*Merrimac 7-2600*
Riverside Manufacturing Division	
P.O. box 1069, 2626 Kansas Avenue, Riverside, Calif.	*Overland 4-5610*
Rome Manufacturing Company Division	
P.O. box 111, Rome, N. Y.	*Rome 2800*
foil products	
Foil Division	
Brooklyn Plant—196 Diamond Street, Brooklyn 22, N. Y.	*Evergreen 9-5180*
Chicago Plant—825 West Blackhawk Street, Chicago 22, Ill.	*Michigan 2-0692*
Newport Plant—Highway 67, Newport, Ark.	*Jackson 3-2771*
Revere Ware Foil Container Division	
2200 North Natchez Avenue, Chicago 35, Ill.	*Merrimac 7-2600*
Plant—Fort Calhoun, Nebr.	*Fort Calhoun 4011*

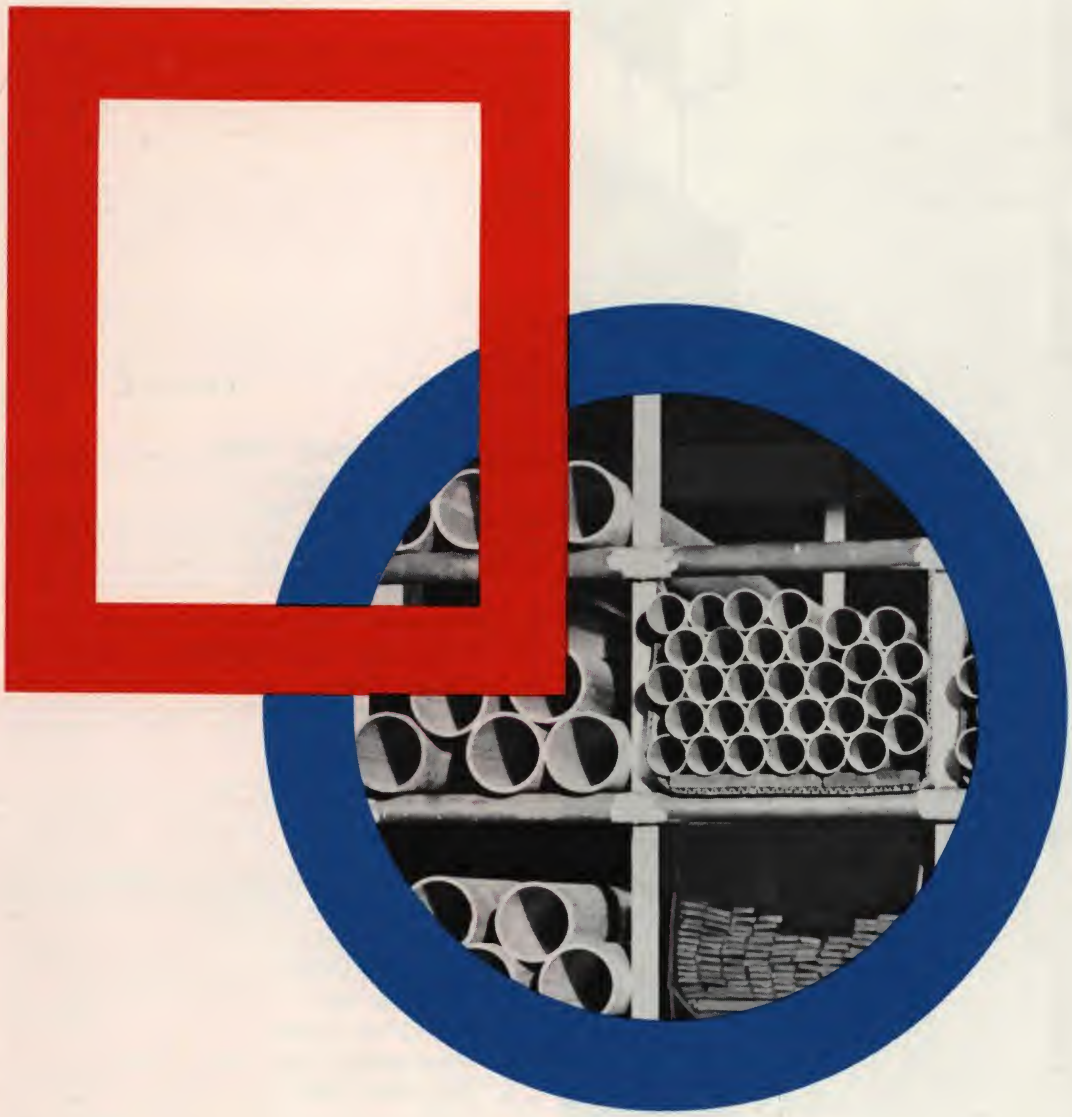
district sales offices:

Atlanta 18, Ga., 1310 Ellsworth Industrial Drive, N. W.	*Sycamore 4-7628*
Boston 16, Mass., 108 Arlington Street	*Hubbard 2-7190*
Buffalo 7, N. Y., 1807 Elmwood Avenue	*Delaware 7616*
Cincinnati 8, Ohio, Station "O", Box 26, 3181 Linwood Rd.	*Trinity 1-1232*
Cleveland 7, Ohio, P.O. box 2656, Lakewood Branch, 14700 Detroit Avenue	*Lakewood 1-2440*
Cranston 10, R. I., 30 Midway Road	*Williams 2-1900*
Dallas 35, Texas, P.O. box 35247, 8320 Chancellor Row	*Fleetwood 7-4058*
Dayton 31, Ohio, box 3056, Overlook Branch, 3898 Linden Avenue	*Clearwater 2-5616*
Denver 4, Colo., 1219 California Street	*Alpine 5-2066*
Grand Rapids 2, Mich., Keeler Building	*Glendale 9-3301*
Hartford, Conn., see Newington	
Houston 27, Texas, P.O. box 22033, 3202 Weslayan Street	*Mohawk 7-9347*
Indianapolis 20, Ind., 665 East 61st Street	*Clifford 1-4505*
Kansas City 11, Mo., 34th Street and Broadway	*Logan 1-8403*
Miami, Fla., see North Miami	
Milwaukee 2, Wis., 828 North Broadway	*Broadway 1-1440*
Minneapolis 5, Minn., 2809 Wayzata Boulevard	*Franklin 7-0890*
Newington 11, Conn., 81 Market Square	*Mohawk 6-2491*
New Orleans 12, La., 923 Howard Avenue	*Jackson 5-4259*
New York 17, N. Y., 75 East 45th Street	*Murray Hill 9-6800*
North Miami, 61, Fla., 900 N. E. 125th Street	*Plaza 1-1614*
Philadelphia, Pa., see Wynnewood	
Pittsburgh 28, Pa., 666 Washington Road	*Locust 1-8606*
Providence, R. I., see Cranston, R. I.	
Rochester 4, N. Y., 31 Gibbs Street	*Baker 5-6540*
St. Louis 8, Mo., 3615 Olive Street	*Jefferson 1-0300*
San Francisco 11, Calif., World Trade Center	*Sutter 1-0282*
Seattle 9, Wash., 314 Fairview Avenue, North	*Main 2-1401*
Wynnewood, Pa., One Wynnewood Road	*Greenwood 7-8326*

12-59



REYNOLDS WAREHOUSED ARCHITECTURAL ALUMINUM



1960 A.I.A. FILE No. 15—J



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ALUMINUM ALLOY SELECTION GUIDE

I. The Effect of Aluminum Alloy Elements Upon Formability

a The higher the percentage, or percentages, of alloying elements present in a constituted alloy, the more adversely affected it is from the standpoint of its workability or formability.

b Two or more alloying elements present in an alloy in amounts approaching or exceeding 1% adversely affect its formability more than one element present in a greater amount.

Example: Alloy 3004, having a nominal content of 1.25% and 1.1% respectively of both manganese and magnesium, has somewhat less workability than alloy 5052 which has a nominal content of 2.5% magnesium alone.

II. Types of Aluminum Alloys

a *Common Alloys*—These are not reactive to heat-treatment for the improvement of their mechanical properties. Such alloys obtain their degree of temper primarily through strain hardening, however, some type of thermal treatment may be involved in their production.

b *Heat-Treated Alloys*—These do react to heat-treatment for the improvement of their mechanical properties. Such alloys obtain their degree of temper primarily by thermal treatment, however, some type of strain hardening may be involved in their production.

c Some common alloys have a higher yield strength in their harder tempers than some of the heat-treated alloys and may be less expensive, however, certain of these alloys are available in sheet or plate which are not available in bar extrusions, tubing, etc. and vice-versa.

III. Mechanical Properties of Aluminum Alloys and Their Effect Upon Formability

a Hardness values of wrought aluminum are the best criteria of workability and formability except where stretching alone is involved. In stretching, elongation is the most important property to consider.

b In most cases, an aluminum alloy having a relatively high ultimate strength in relation to its yield strength provides for optimum workability; however, in a case where two different alloys may be equal in this respect, the one having the lesser hardness will be the more workable such as 6061-T6 in the following example:

ALUMINUM ALLOY EXTR.	GUARANTEED ULT. STRENGTH	GUARANTEED YD. STRENGTH	GUARANTEED ELONGATION	TYPICAL BRINELL HARDNESS
2014-T6	60,000 p.s.i.	53,000 p.s.i.	7%	135
6061-T6	42,000 p.s.i.	35,000 p.s.i.	10%	95

c It is impossible to rate formability on the basis of any particular mechanical properties or individual characteristic of an aluminum alloy. While, as stated above, hardness is a good criteria, other factors such as elongation, yield and ultimate strengths, surface texture and oxidation, grain size, etc. all contribute to determine the actual workability characteristics of the metal.

d Some very desirable and popular heat-treated aluminum alloys for structural and architectural applications are available in various tempers, some of which are unstable. That is, they may age harden fairly rapidly under certain atmospheric conditions and environments. They are:

Unstable Tempers—2014-T3 or -T4 (Bare or Alclad)
6061-T4 (Bare or Alclad)
6062-T4
6063-T4

It is advisable that architects be cognizant of the above possibility and establish their designs on the basis of fabricating such alloys in their stable tempers:

Stable Tempers—2014-T6 (Bare or Alclad)
6061-T6 (Bare or Alclad)
6062-T6
6063-T6

e Other very desirable and popular types of heat-treatable aluminum alloys used for architectural applications may vary to a slightly more than normal degree in their mechanical properties from one production lot to another; and as a consequence, workability and formability may be affected to the degree that inconsistent results are encountered when using non-adjustable tooling and methods. They are 6063-T5 and 6063-T6.

Here again, it is advisable that architects and fabricators be cognizant of this and establish their designs and production methods based upon the mechanical properties of these alloys being at their higher levels rather than at their lower, guaranteed values.

IV. Recommended Aluminum Alloys for Architectural Applications

a *Sheet & Plate* (To be exposed with natural or plain anodized finish.)

LOW STRENGTH	INTERMEDIATE STRENGTH	HIGH STRENGTH
5005	5050	5154
(See Notes	5357	6061-T6
1 & 2 Below)	5052	2014-T6
		2024-T3 or -T4

b *Extrusions, Shapes, Bar & Tubing* (To be exposed with natural or plain anodized finish.)

LOW STRENGTH	INTERMEDIATE STRENGTH	HIGH STRENGTH
6063-T42	6063-T5	6061-T6
(See Note	6063-T6	6062-T6
No. 2 Below)		2014-T6
		2024-T4

Notes:

1 Certain clad alloys developed for special purposes are also recommended when the end use warrants their selection.

2 The alloys underlined are not recommended for use in areas exposed to salt water atmosphere or for use in combination with other alloys.

V. Forming of Aluminum Alloys

a All wrought aluminum alloys can be readily formed. Each, of course, has its own limitation in respect to any specific forming operation. Architectural applications designed to be made from aluminum generally require one or more of the following fabricating operations, all of which are conveniently accomplished on aluminum with the proper tooling and equipment:

Bending	Stamping	Slitting	Stretching
Drawing	Roll Forming	Flanging	Spinning
Ironing	Curving	Edging	Beading
Extruding	Blanking	Necking	Forging
Coining	Piercing	Bulging	Pressing
Embossing	Shearing	Curling	Shrinking
			Swaging

b Aluminum can be pre-coated with an organic finish suitable for satisfactorily withstanding moderate forming operations such as bending, roll forming, shallow embossing, curling and beading.

c Pre-anodized aluminum, except when subjected to an exceptionally generous type of operation, cannot be successfully formed without affecting or rupturing the anodic film. Anodic films adversely affect tooling surfaces; and it is recommended that, in most cases, aluminum parts be fabricated prior to anodizing.

TYPICAL MECHANICAL PROPERTIES OF WROUGHT ALUMINUM ALLOYS (COMMON)*

		TENSION				COMPRESSION	SHEAR	BEARING			
		STRENGTH PSI		ELONGATION % IN 2 IN.				EDGE DISTANCE= 2X RIVET DIA.			
	ALLOY AND TEMPER	ULTIMATE	YIELD SET 0.2%	1/16" THICK.	1/2" DIA.	YIELD STRENGTH PSI	ULTIMATE STRENGTH PSI	ULTIMATE STRENGTH PSI	YIELD STRENGTH PSI	ENDURANCE LIMIT PSI	BRINELL HARDNESS
NON-HEAT-TREATABLE ALLOYS	3303-O	16,000	6,000	30	40	6,000	11,000	28,800	10,800	7,000	28
	-H14	22,000	21,000	8	16	21,000	14,000	39,600	37,800	9,000	40
	3004-O	26,000	10,000	20	25	10,000	16,000	46,800	18,000	14,000	45
	-H34	35,000	29,000	9	12	29,000	18,000	63,000	52,200	15,000	63
	5005-O	18,000	6,000	30	—	6,000	11,000	32,400	10,300	—	28
	-H14	23,000	22,000	6	—	22,000	14,000	41,400	39,600	—	—
	5052-O	28,000	13,000	25	30	13,000	18,000	50,400	23,400	16,000	47
	-H34	38,000	31,000	10	14	31,000	21,000	68,400	55,800	18,000	68
	5154-O	35,000	18,000	27	—	18,000	18,000	63,000	32,400	17,000	58
	-H34	42,000	33,000	13	—	33,000	24,000	75,600	59,400	19,000	73
HEAT-TREATABLE ALLOYS	2014-T6	70,000	60,000	—	13	60,000	42,000	126,000	108,000	18,000	135
	2024-T4	68,000	47,000	20	19	47,000	41,000	122,400	84,600	20,000	120
	6061-T6	45,000	40,000	12	17	40,000	30,000	81,000	72,000	14,000	95
	6062-T6	45,000	40,000	—	17	40,000	30,000	81,000	72,000	14,000	95
	6063-T5	27,000	21,000	12	—	21,000	17,000	48,600	37,800	10,000	60
	6063-T6	35,000	31,000	12	—	31,000	22,000	63,000	55,800	10,000	73

*Mechanical properties vary between plate, extrusions and tubing. For specific data contact Reynolds Metals Co., Richmond 18, Virginia.

ARCHITECTURAL FINISHES FOR ALUMINUM

The pleasing natural appearance of aluminum can be finished in a large variety of ways which achieve special effects, add color and beauty, increase aluminum's naturally fine weather resistance, and impart greater corrosion protection.

Sulphuric Acid Anodizing—An electrochemical process that augments the natural oxide coating, greatly increasing aluminum's natural weather resistance and also increasing aluminum's resistance to abrasion. This transparent oxide film can be dyed, adding metallic color to the aluminum surface. To assure a durable finish the coating thickness and film weight should be specified according to the application from the table below:

APPLICATION	SHEET AND EXTRUSIONS MIN. FILM THICKNESS	SHEET AND EXTRUSIONS MIN. COATING WEIGHT/SQ. IN.
INTERIOR USE		
MINIMUM ABRASION (for picture molds, interior trim, ceilings)	.00025"	12 mg.
MEDIUM ABRASION (for door frames, window frames, window stools)	.0004"	18 mg.
MAXIMUM ABRASION (for hardware, baseboards, handrails, doors)	.0008"	37 mg.
EXTERIOR USE	.0008"	37 mg.

NOTE: To preserve the original beauty and appearance, we recommend periodic removal of soil accumulation using a soft bristled brush and any mild, non-etching, non-abrasive soap or detergent. A properly initiated maintenance program will add years to the useful beauty and appearance of any structure.

Reynolds Architectural Finishes—Make use of sulphuric acid anodizing under special process and material control, using the best methods known regardless of cost involved, thereby assuring a thicker, more uniform oxide coating, which has maximum abrasion resistance, weather resistance, and color retention. On all standard Reynolds Architectural Finishes durable lacquer coatings are provided as additional protection from abuse during construction.

Reynolds Standard Architectural Finishes are available only on the following alloys:

NATURAL COLOR (ANODIZED)	ALLOYS FOR CLOSEST COLOR MATCH SHEET AND EXTRUSION ALLOY
MEDIUM SLATE GREY	RF-20
PEARL GREY	RF-15
SILVER GREY	RF-10

REYNOLDS FINISH DESIGNATION SYSTEM

Reynolds has adopted a four digit system for proper finish description. The numbers and specifications that apply to architectural finishes follow:

First Digit—Application

3XXX Architectural Interior
4XXX Architectural Exterior

Second Digit—Basic Color

X0XX Natural (*Alloy determines color*)
X1XX Blue
X2XX Green
X3XX Yellow
X4XX † Red
X5XX Gold
X6XX Black
X7XX Brown
†*Available on 3xxx (interior) finish only*

Third Digit—Surface Conditioning

XX0X Mill Finish—The surface which naturally results from sheet rolling or extrusion processes.
XX1X Chemically Brightened Finish—Highly lustrous bright finish.
XX2X Buffed Finish—Smooth mirror-like finish.
XX3X Belt Sanded Finish—A textured finish of parallel scratch lines in varying degrees of definition, produced with belts of 80-150 emery.
XX4X Sand Blasted Finish—Pleasingly rough texture in varying degrees of roughness produced from compressed air and sand using 40 to 200 mesh sand.
XX5X Satin Finish—A soft textured finish of parallel scratch lines in varying degrees of fineness produced on belt sanders or rotary wheels using 160-220 emery.
XX6X Caustic Etched Finish—Attractive, widely-used chemical finish similar to finely etched glass in varying degrees of etch, controllable by concentration, temperature, and time.
XX7X Buffed and Chemically Brightened Finish—Smooth, highly lustrous, bright mirror-like finish.

Fourth Digit—Special Processing Information

XXX0-XXX9—Contains specific processing information. Available to processors who meet Reynolds rigid requirements and high standards.

PORCELAIN ENAMEL FINISH

Opaque and clear vitreous enamels are fired to the aluminum surface at temperatures of 950°-1000°F producing an extremely adherent, tough, glass-like film which can be drilled, sawed, and lightly formed without spalling. Porcelain enamel frits are available in a wide variety of glossy or matte, face-resistant colors. These finishes are available from a selected group of processors who have the special processing equipment necessary. Porcelain enamel frits should be applied to Reynolds special enameling sheet alloy 6061-H12.

ORGANIC FINISHES

Paint, Colored Lacquers, Enamels—Can be applied to any properly prepared surface. Removal of grease and treatment with chromate or phosphate conversion coating assures a good bond.

DESIGNING FOR LONG LIFE WITH ALUMINUM

Among the many favorable characteristics of aluminum and its alloys, corrosion resistance ranks as a major factor. In architectural application, the resistance to weathering of aluminum has been recognized for over 60 years. From the first architectural application of consequence, a roof on the San Gioacchino Church in Rome in 1897, the number and variety of aluminum alloy architectural applications have grown to the point where they cannot be cataloged.

Among the alloys most commonly employed in the architectural field and building trades are the 1000, 3000, 5000 and 6000 series. These alloys exhibit good to excellent corrosion resistance in industrial, marine and rural environments. Alloys, such as 1100 or 3003, are generally employed where structural strength is not a primary requirement. These alloys are considered to be adequate for all but the most severe conditions of exposure. For exposure to marine environments, aluminum alloys of the 5000 series, particularly 5052 and 5154, offer the highest order of corrosion resistance. In severe industrial or industrial-marine environments, alloys of the 5000 series, such as 5052 and 5154, and the clad alloys, such as clad 3003 or clad 3004, are generally employed. Alloys 6061, 6062 and 6063 are often employed for extruded shapes and offer both strength and corrosion resistance.

Alloys of the 2000 series and 7000 series are sometimes employed in the fabrication of structures because of their high strength characteristics. Except in rural and non-corrosive environments, these alloys should be protected either by cladding or by the application of a protective organic coating.

For architectural purposes, the common alloys (those in the 1000, 3000, 4000 and 5000 series) and the age hardenable alloys of the 6000 series may be used in combination to obtain the desired architectural effects and structural strength.

The resistance to corrosion of aluminum alloys depends on the presence of a very thin film of aluminum oxide that protects the metal surface. This inert film forms immediately upon the metal when it is in contact with air. At room temperature the naturally occurring oxide film rarely exceeds a thickness of one-millionth of an inch. At higher temperatures a somewhat thicker protective oxide film occurs. This extremely thin protective film effectively halts further atmospheric oxidation of aluminum, and prevents or slows down chemical reaction between aluminum and the chemicals found in marine and industrial environments. Furthermore, this natural film is capable of repairing itself. As the protective oxide film is damaged by chemical or mechanical action, a new film will form over the exposed metal, provided there is sufficient oxygen present in the environment. This is true in atmospheric exposure conditions as well as in many applications in sea water, fresh water and in chemical plants. The oxide film protects the metal surface under extremes of temperature conditions and remains intact even at the melting point of aluminum.

PROTECTION AGAINST ATMOSPHERIC ATTACK:

Although atmospheric corrosion of aluminum is a superficial phenomenon resulting initially in minor pitting or in a general and uniform adherent film of aluminum oxide, it is sometimes necessary to protect the metal surface either to maintain architectural beauty or to overcome some very aggressive chemical conditions which might lead to early deterioration of the structure.

Three major types of protection are commonly employed. Where appearance is of primary concern, many architectural items are anodized (see Architectural Finishes for Aluminum Section). Provided the anodic film is of sufficient thickness and is properly maintained (annual or biannual washing with water containing a wetting agent usually suffices), the anodic film will offer protection even under severe conditions of exposure for periods ranging up to thirty or more years. The thicker the anodic film, the longer will be the life of the film.

Another means of protecting the aluminum surface and maintaining its appearance is the application of organic coatings, such as paints and waxes. Because organic films are subject to deterioration over a relatively short period of time, it is necessary to replace these films at regular intervals. The life of these films will range from three to six months for most wax type protective coatings to as much as ten years for certain of the synthetic resins, such as vinyl and epoxy base coatings.

Where aesthetic considerations are not involved, the strength of aluminum alloys in highly corrosive environments can be maintained by the use of clad alloys. Even high strength aluminum alloys such as 7075 and 2024 are adequately protected by this means. Usually it is not necessary to employ these aircraft type alloys for ordinary architectural service, for the clad 3003 and clad 3004 alloys will prove to be adequate.

PROTECTION AGAINST GALVANIC ATTACK:

Galvanic action, the most common cause of aluminum corrosion, is the result of contact between aluminum and a dissimilar metal in the presence of an electrolyte (chemicals dissolved in water). Certain dissimilar materials do not initiate corrosion of aluminum, but in themselves suffer accelerated attack when in contact with aluminum. These metals are considered to be anodic. Both magnesium and zinc are in this category.

Other dissimilar metals, such as iron, copper, lead and tin, initiate and accelerate corrosion when in contact with aluminum and are termed cathodic. To protect against, or to eliminate the possibility of galvanic corrosion, one of the following protective measures should be employed:

1 Choose compatible materials of construction. Wherever possible, employ aluminum alloys for fasteners and components.

2 Where it is necessary to use a dissimilar metal, the cathodic metal should be either galvanized or cadmium plated to reduce the possibility of accelerated attack.

3 If dissimilar metal fasteners are required, passive stainless steels of the 300 series or of the 400 series (13% chromium or greater) are very satisfactory.

4 Gasketing materials such as neoprene, polyvinyl chloride, and most organic based coatings will prevent galvanic corrosion by insulating the two dissimilar metals. These materials should be non-absorbent.

We have been considering only that type of galvanic corrosion which results from direct metal to metal contact. Another source is the electrolytic deposition of cathodic metals onto aluminum from water which has drained off copper gutters and flashings. To protect against this source of corrosion, it is necessary to paint the copper parts.

PROTECTION AGAINST OTHER ATTACKS:

At times corrosion of aluminum can be initiated by contact with concrete, masonry or wood surfaces because such contacts will shield the metal from oxygen, thus preventing the natural repair of the protective oxide film. This attack can be effectively prevented by applying an inexpensive, organic coating (two or more coats of a bituminous, mastic or asphaltic base material). Tar or asphalt impregnated building paper may be employed, but it is not as effective as the protective organic coatings applied directly to the aluminum.

Alkaline building materials, such as concrete and mortar, cause an etching attack on aluminum which affects appearance but does not structurally weaken the aluminum shape. This attack can be prevented by the use of stripable organic films or by the application of a clear methacrylate coating.

Although aluminum is inert when in contact with, or buried in, many soil types, there are conditions where corrosion may become a problem. The application of an inexpensive petroleum based organic coating will normally be satisfactory in preventing this action.

SUGGESTED SPECIFICATIONS—ARCHITECTURAL ALUMINUM SECTION

(Note: Architectural Aluminum should be specified in a separate section for convenience and more accurate bidding. Other metal work sections should make cross reference to this section under scope as work not included.)

General Conditions

"The General Conditions of the Contract for The Construction of Buildings," a standard form of the American Institute of Architects, current edition (and "Supplementary General Conditons"), are part of this specification.

Scope of the Work

Furnish labor, materials, equipment necessary to complete aluminum work indicated on drawings or herein specified.

Furnish all parts, fasteners, accessories and miscellaneous devices necessary for complete fabrication, assembly, erection and installation. Provide protective coatings.

Provide materials and labor for caulking, sealing and grouting as required by this section. (May be specified in other sections.) Do final cleaning.

Materials

Aluminum alloys specified in this section shall be products of Reynolds Metals Company, General Sales Office, Richmond 18, Virginia.

Furnish

Specify by form, name, shape, section, alloy, temper, pattern, finish, color and dimensions if not given on drawings. The following are some examples:

EXTRUDED SHAPES:

Handrail RMC Section No. 7885
Alloy and Temper 6063-T4
Satin finish, 60 minute anodize light gold and lacquered. One dip coat of clear, methacrylate lacquer

STRUCTURAL SHAPES:

American Standard Channels 3″ 1.46/Ft.
RMC Section No. 6063
Alloy and Temper 6061-T6

SHEET ALUMINUM:

Fluted sheet M-104 one side
Alloy and Temper 3003-H14
.04″ and .125″ thick as indicated on the drawings
30 minute anodized bright finish

Installation, Erection, Workmanship

SHOW DRAWINGS:

Submit complete shop drawings according to articles of general conditions.

SAMPLES:

Submit 2 samples of each material representative of color, finish, texture and quality according to article 8 of General Conditions.

EXPANSION AND CONTRACTION:

Aluminum work shall be fabricated, anchored and fastened so as to provide for adequate expansion and contraction without causing undue stresses or deformation. (*Note:* Architectural alloys will expand about $\frac{5}{32}$″ per 10′ of length for 100 degree F temperature rise.)

Locate and construct expansion joints so as to prevent accumulative expansion and maintain watertightness.

DISSIMILAR MATERIAL:

Metals—Protect aluminum at contact with metals other than stainless steel or zinc by (1) one heavy brush coat primer of Zinc Chromate in synthetic resin vehicle and two coats of aluminum metal and masonry paint or (2) a heavy brush coat of Alkali-Resistant Bituminous paint or (3) a non-porous tape or gasket.

Masonry, Concrete, Plaster—Protect aluminum at contact with masonry, concrete, plaster by a heavy brush coat of (1) Alkali-Resistant Bituminous paint or (2) clear methacrylate lacquer.

Wood—Protect aluminum at contact to wood exposed to repeated wetting or treated wood (if non-compatible preservatives are used) by (1) a heavy brush coat of aluminum pigment bituminous paint or (2) two coats of aluminum metal and masonry paint. Caulk joints.

(Note: Consult paint manufacturers for data on paints and protective coatings.)

DRAINAGE FROM OTHER METALS:

(Design should preclude situations which will necessitate drainage from dissimilar metals onto exposed surfaces of aluminum.) Paint dissimilar metals where drainage is onto or across or through aluminum materials.

FABRICATION:

Aluminum work shall be fabricated by skilled mechanics experienced in performing highest quality work. Work shall be free of blemishes, tool marks, burrs, scars, abrasions or other defects which may impair its strength or durability or adversely affect its appearance. Edges shall be smooth, profiles sharp and finish uniform in texture and color. Joints, welds and intersections shall be properly made and fitted.

ERECTION, INSTALLATION:

Aluminum work shall be erected and installed plumb, level, square and in proper alignment to adjacent work. Work shall be free of wave, buckles or other defects. Provide proper adjustment devices such as shims, wedges and slots to assure proper alignment and allowance for usual discrepancies in other work. Provide anchors, brackets and other methods of securing work as required. Inspect supporting structure or other work affecting alignment of aluminum work, make such corrections as necessary before beginning installation or erection of aluminum work.

PROTECTION:

Aluminum work shall be protected from abuse or accidental damage during shipment, erection, installation and during construction of adjacent work. Protection shall be accomplished by proper crating and packaging, application of stripable masking tape, and where these methods are not practical by use of heavy coat of petroleum jelly.

All damaged work shall be replaced immediately according to article 19 of General Conditions.

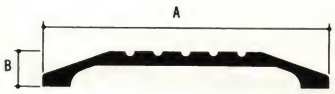
(Note: A heavy dip coat of methacrylate lacquer is recommended as permanent protection in addition to the above as part of permanent finish.)

CLEANING:

Clean all aluminum work by removing protective tape and other coating. Use mild soap or detergents and clear petroleum spirits. Acids, caustics and abrasives shall not be used. Where cleaners are used to remove excess sealing compounds care shall be exercised to prevent damage to seals. Staining of or damage to adjacent work shall be prevented.

SADDLE

SECTION NO.	A INCHES	B INCHES	APPROX. WT. LBS./FT.
3650	3	½	.658
3651	4	½	.787
3662	5	½	1.002
3663	6	½	1.189



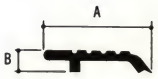
SECTION NO.	A INCHES	B INCHES	APPROX. WT. LBS./FT.
7883	7½	½	1.652



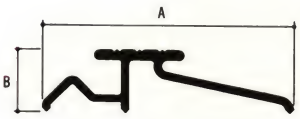
WEATHERSTRIP

Alloy and temper 6063-T5. Standard length 16′-3″.

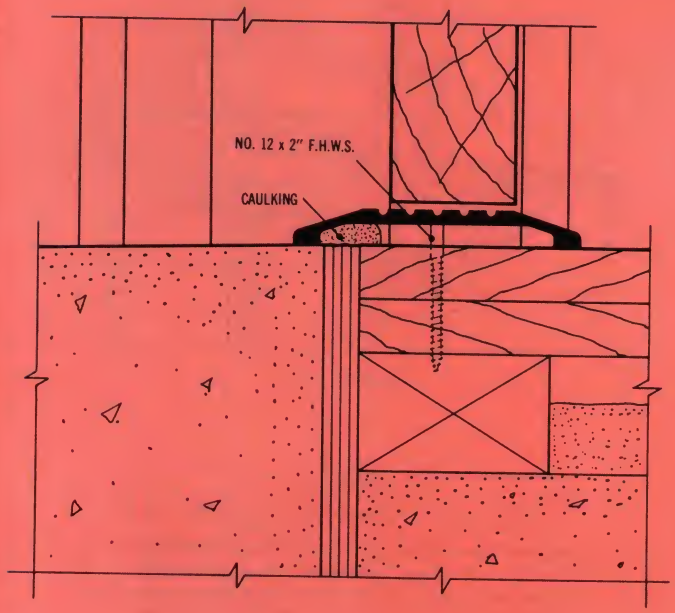
SECTION NO.	A INCHES	B INCHES	APPROX. WT. LBS./FT.
3796	1⅜	¼	.184

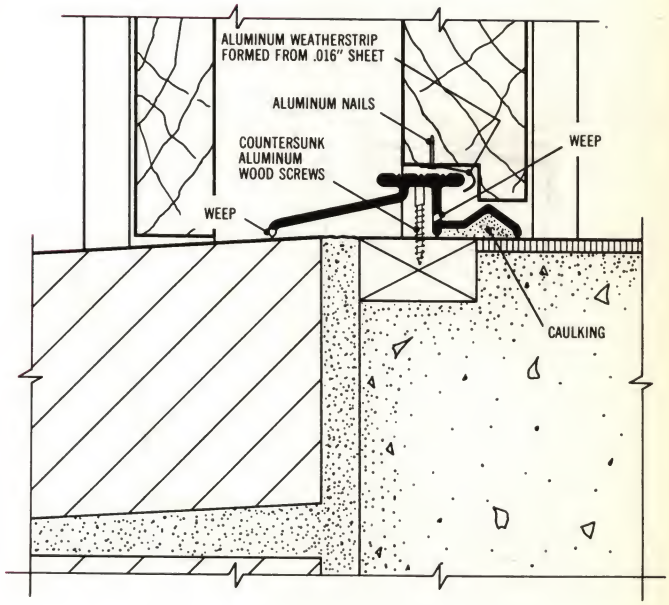


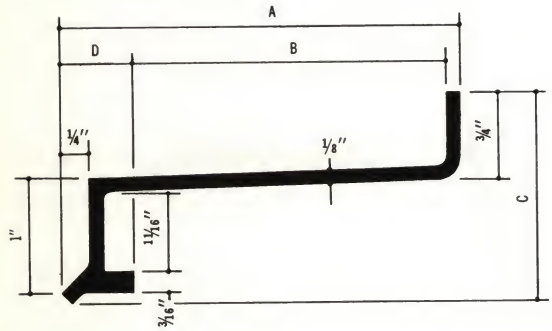
SECTION NO.	A INCHES	B INCHES	APPROX. WT. LBS./FT.
3704	3½	9/16	.577

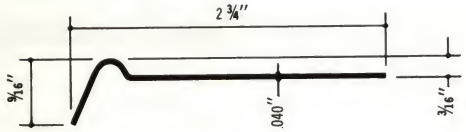


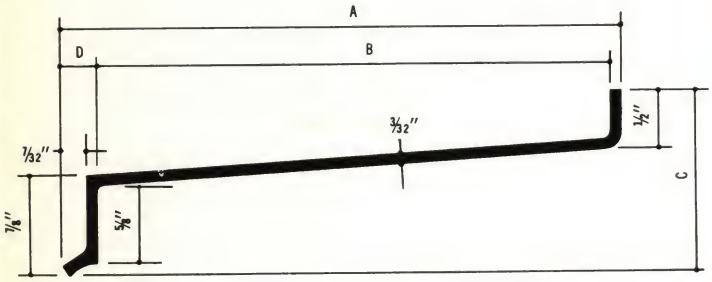
SECTION NO.	A INCHES	B INCHES	APPROX. WT. LBS./FT.
5192	3½	⅞	.649











ANCHOR SILL—TYPE "B"

Alloy and temper 6063-T42. Standard length 21′-0″.

SECTION NO.	APPROX. WT. LBS./FT.	A INCHES	B INCHES	C INCHES	D INCHES
13695	.773	3½	2¾	1 13/16	⅝
13696	.847	4	3¼	1 27/32	⅝
9558	.935	4½	3¾	1⅞	⅝
13008	.989	5	4¼	1 29/32	⅝
13009	1.063	5½	4¾	1 15/16	⅝
13697	1.147	6	5¼	1 31/32	⅝
13698	1.519	6 9/16	5¾	2	2 1/32

ANCHOR CLIP FOR SILL TYPE "B"

CLIP length: 0′-2″.

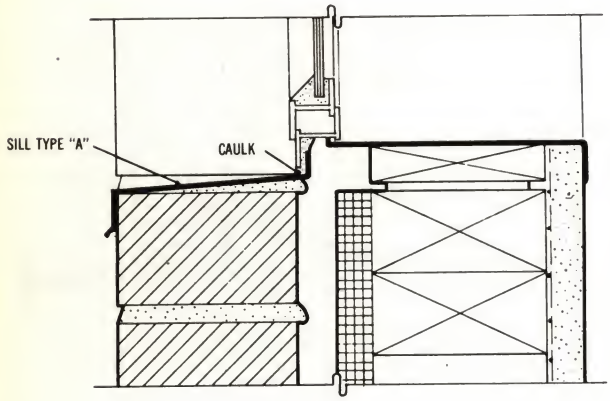
13007	.144

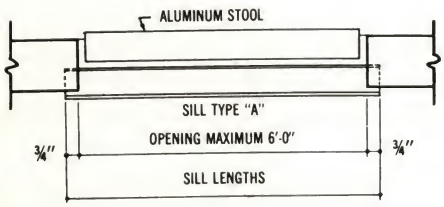
LUG SILL—TYPE "A"

Alloy and temper 6063-T42. Standard length 21′-0″.

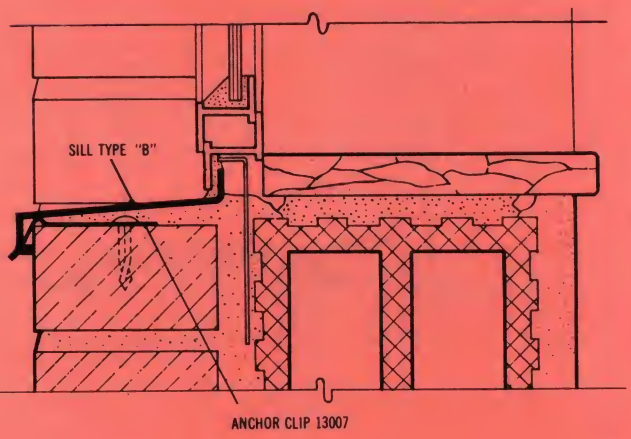
SECTION NO.	APPROX. WT. LBS./FT.	A INCHES	B INCHES	C INCHES	D INCHES
3686	.678	4 29/32	4½	1 9/16	5/16
3687	.734	5 13/32	5	1 19/32	5/16
3685	.791	5 29/32	5½	1⅝	5/16

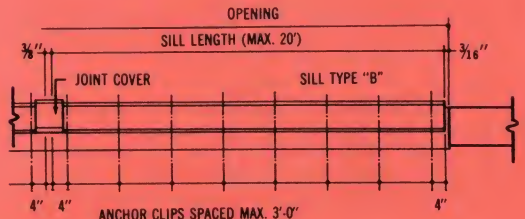
LUG SILL—TYPE "A"
SUITABLE FOR INSTALLATION
AS UNIT SILL

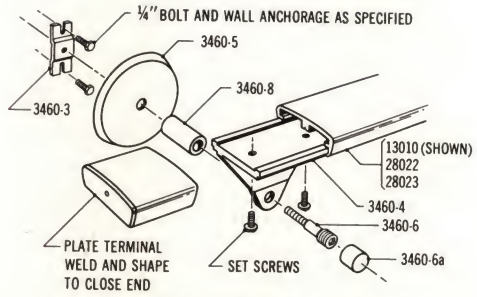




ANCHOR SILL—TYPE "B"
SUITABLE FOR INSTALLATION
AS UNIT SILL OR AS
CONTINUOUS SILL

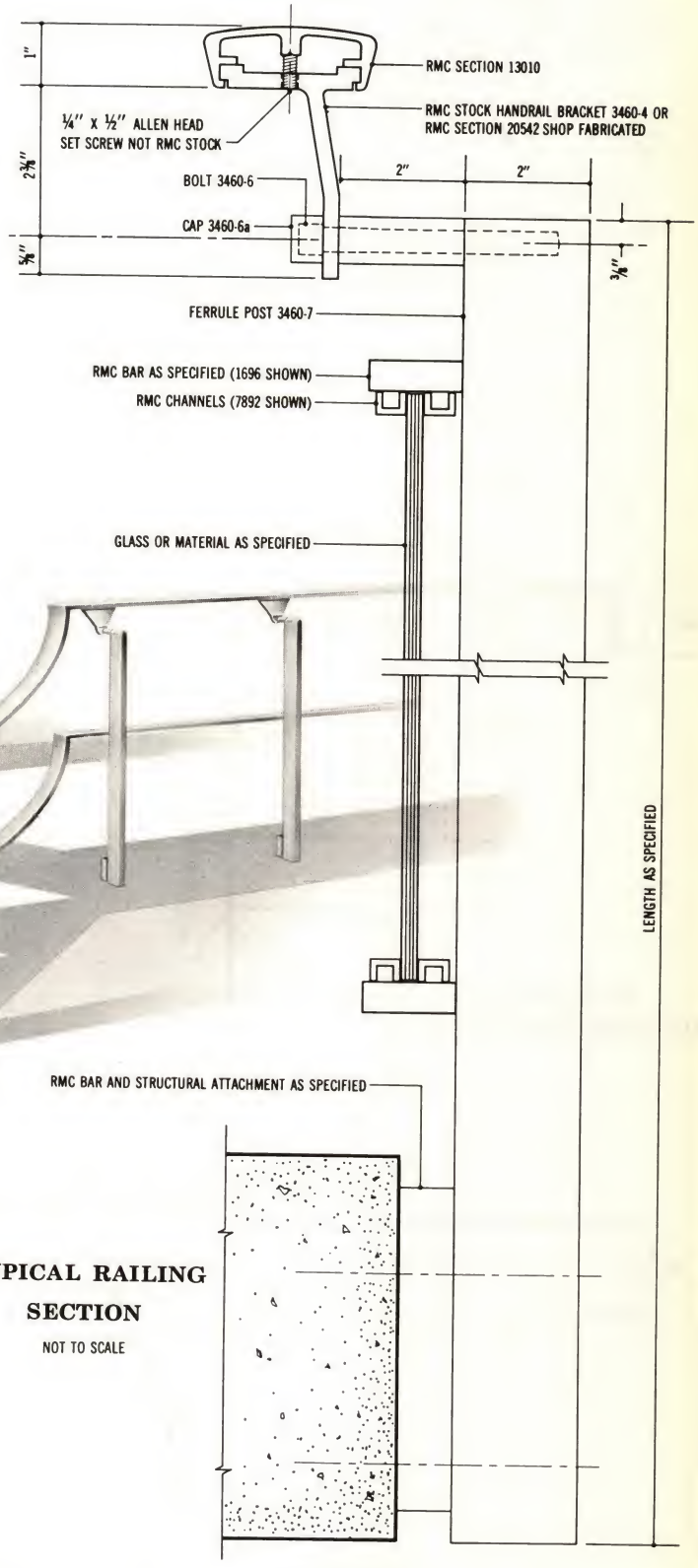






WALL BRACKET ASSEMBLY

NOT TO SCALE

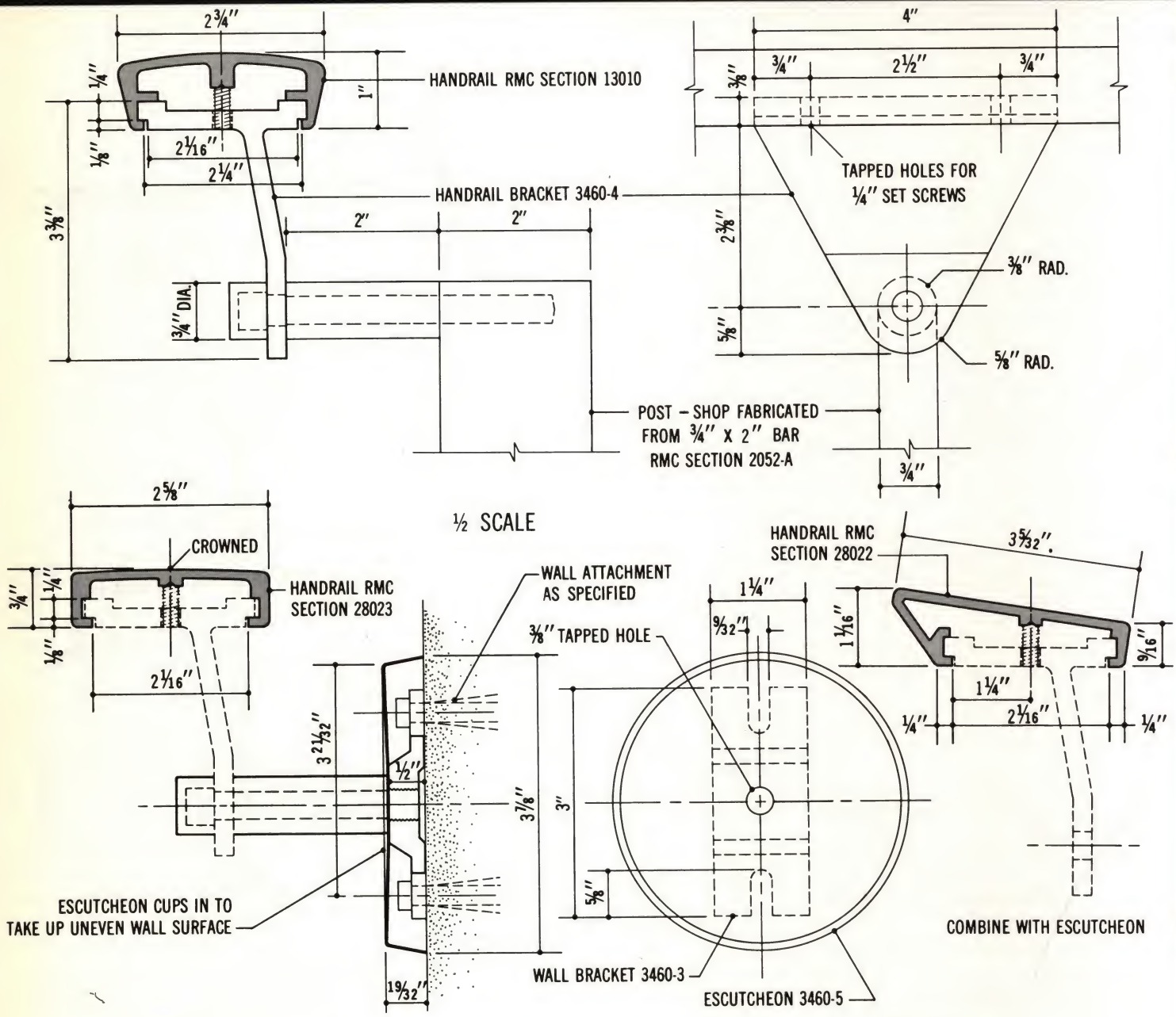


TYPICAL RAILING SECTION

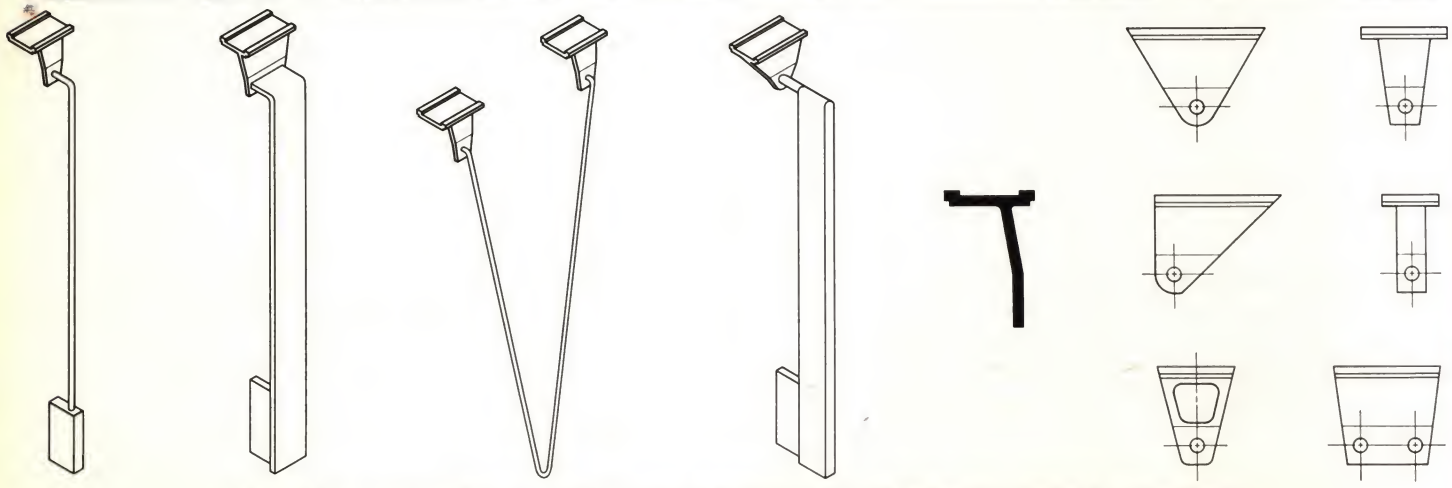
NOT TO SCALE

REYNOLDS HANDRAIL SYSTEM

Complete architectural flexibility in design and cost. Fabrication and finishing by local metal fabricators from warehoused stock parts. Simple intermediate rails, rigidized aluminum panels or floating tempered glass curtains are but a few of the many variations possible with the three rails and seven basic components.



HANDRAIL SECTIONS — POST AND WALL BRACKET MOUNTING



A few of the many possible shop fabricated post variations using RMC Section 20542 in combination with warehoused rod and bar stock shown on page seventeen.

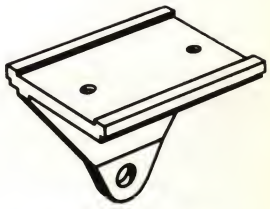
All extrusions are furnished in alloy and temper 6063-T5, in mill condition for finishing by fabricators. Standard lengths are 20′-0″.

SYSTEM ACCESSORIES

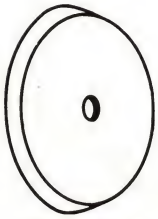
PART NO.	DESCRIPTION	MATERIAL
3460-3	WALL BRACKET	6063-T5
3460-4	HANDRAIL BRACKET	6063-T5
3460-5	ESCUTCHEON	RF10-BRUSHED FINISH
3460-6	CONNECTOR BOLT	STAINLESS STEEL
3460-6A	BOLT CAP	6063-T5
3460-8	FERRULE	6063-T5



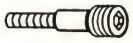
WALL BRACKET



HANDRAIL BRACKET



ESCUTCHEON



CONNECTOR BOLT



BOLT CAP



FERRULE

SYSTEM HANDRAIL BRACKET EXTRUSION

SECTION NO.	WIDTH	DEPTH	APPROX. WT. LBS./SQ. FT.
20542	2¼″	3⅜″	1.697



20542

SYSTEM HANDRAILS

SECTION NO.	WIDTH	DEPTH	APPROX. WT. LBS./SQ. FT.
13010	2¾″	1″	.858
28022	3³⁄₃₂″	1¹⁄₁₆″	.853
28023	2⅝″	¾″	.650



13010



28022

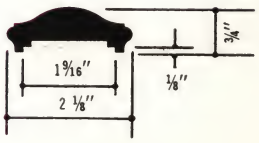


28023

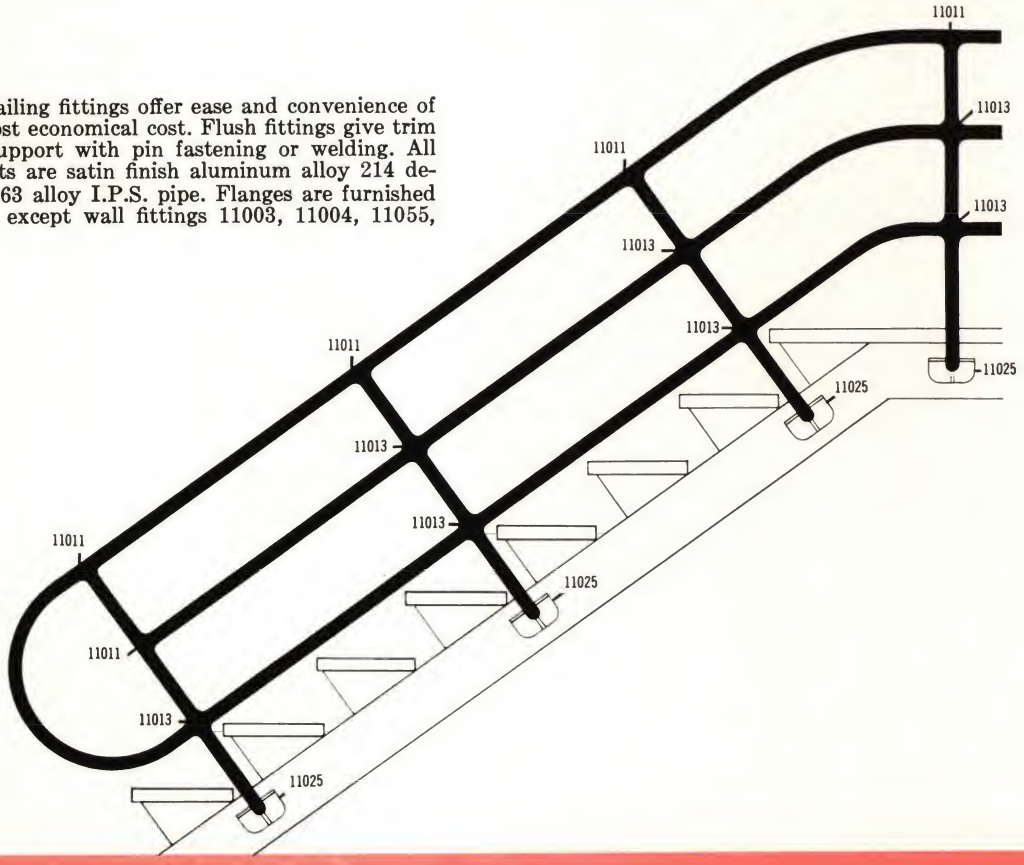
MISCELLANEOUS HANDRAILS

SECTION NO.	WIDTH	DEPTH	APPROX. WT. LBS./SQ. FT.
7885	2⅛″	¾″	1.030

7885



11000 Series pipe railing fittings offer ease and convenience of installation at a most economical cost. Flush fittings give trim lines and sturdy support with pin fastening or welding. All fittings and brackets are satin finish aluminum alloy 214 designed to match 6063 alloy I.P.S. pipe. Flanges are furnished without bolt holes except wall fittings 11003, 11004, 11055, 11056.



ALUMINUM I.P.S. HANDRAIL AND STANDARD PIPE

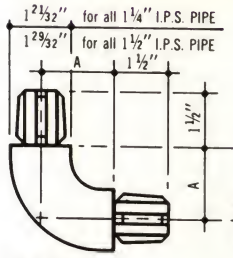
Furnished in Mill Finish 20′-0″ lengths with plain ends in 6063-T6 alloy and temper.



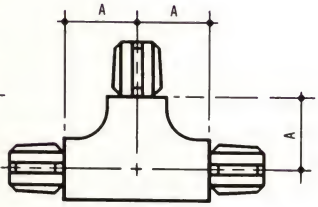
SIZE I. P. S.	OUTSIDE DIAMETER	INSIDE DIAMETER	WALL THICKNESS	APPROX. WEIGHT LBS./PER FT.
1″				.581
1¼″	1.660″	1.380″	.140″	.785
1½″	1.900″	1.610″	.145″	.939
2″				1.262

PIPE SIZE	FITTING ANGLE	DIMENSIONS—INCHES																			
I. P. S.	(ϕ)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1¼″	90° 40° 35°	2 2 2	1¼ 1¼	2¾ 2¾	⅜ ⅜ ⅜	1	2⅛ 2⅛ 2⅛	1¾	1⅞	½	1	3	4⅝	1¼	2	2⅛	3⅞	1¾₆	2½ 2½ 2½	2⅛ 1⅞	3¾ 3¾	6 6 6
1½″	90° 40° 35°	2¼ 2¼ 2¼	1½ 1½	3 3	7⅛ 7⅛ 7⅛	1⅛	2⅞ 2⅞ 2⅞	2	2⅛	9⅛	1⅛	3⅛	5⅛	1½	2¼	2⅜	4¾₆	⅞	2¾ 2¾ 2¾	2¾₆ 1¹⅝₆	4 4	6½ 6½ 6½

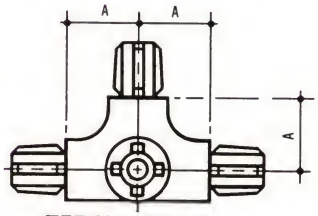
90° FLUSH TYPE



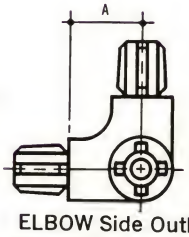
ELBOW
No. 11005 1¼" I.P.S.
No. 11006 1½" I.P.S.



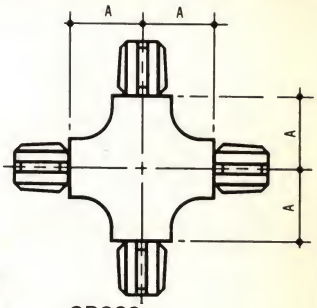
TEE
No. 11011 1¼"
No. 11012 1½"



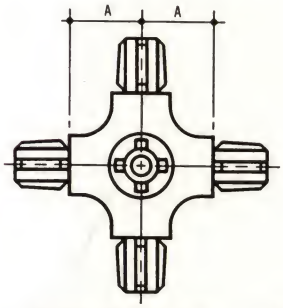
TEE Side Outlet
No. 11019 1¼"
No. 11020 1½"



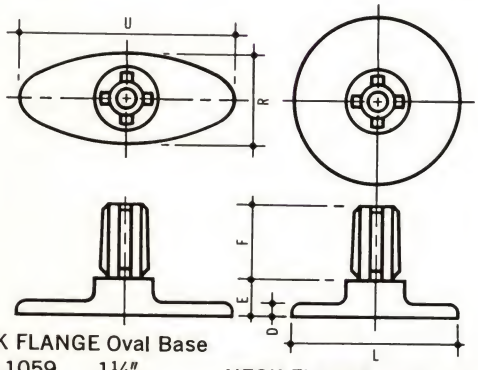
ELBOW Side Outlet
No. 11017 1¼"
No. 11018 1½"



CROSS
No. 11013 1¼"
No. 11014 1½"

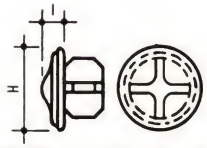


CROSS Side Outlet
No. 11021 1¼"
No. 11022 1½"

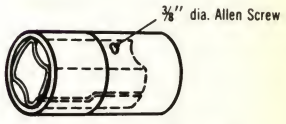


NECK FLANGE Oval Base
No. 11059 1¼"
No. 11060 1½"

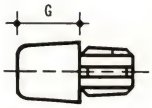
NECK FLANGE Round Base
No. 11015 1¼"
No. 11016 1½"



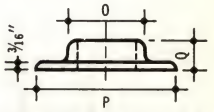
PIPE PLUGS Drive Fit
No. 11007 1¼"
No. 11008 1½"



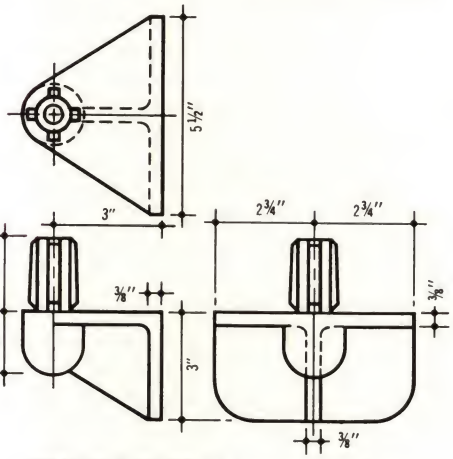
PIPERAIL SPLICE LOCK
No. 11057 1¼"
No. 11058 1½"



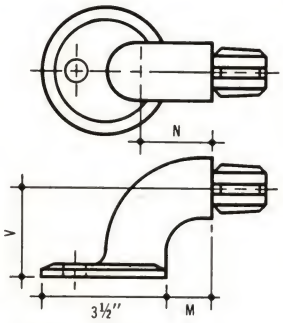
FLUSH TERMINAL CAP
No. 11023 1¼"
No. 11024 1½"



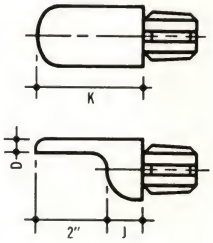
FLOOR OR WALL FLANGE
No. 11009 1¼"
No. 11010 1½"



BRACKET FITTING Outside Stringer
No. 11025 1¼"
No. 11026 1½"



WALL FITTING
Dim. "V" 2½"
No. 11003 1¼"
No. 11004 1½"
Dim. "V" 3"
No. 11055 1¼"
No. 11056 1½"

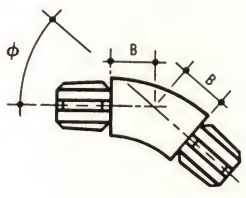


POST FITTING
No. 11001 1¼"
No. 11002 1½"

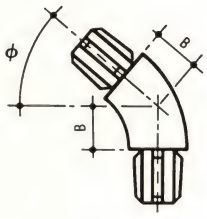


These fittings can be used for either left handrails or right handrails, also horizontally.

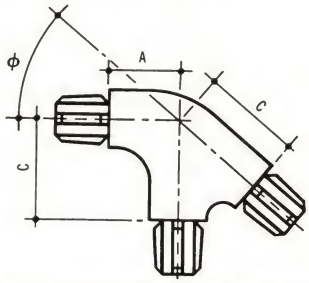
35°, 40° FLUSH TYPE



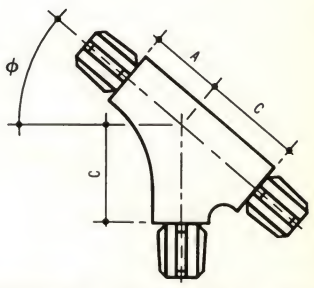
HORIZONTAL ANGLE ELL
35°
No. 11027 1¼"
No. 11028 1½"
40°
No. 11029 1¼"
No. 11030 1½"



VERTICAL ANGLE ELL
35°
No. 11031 1¼"
No. 11032 1½"
40°
No. 11033 1¼"
No. 11034 1½"

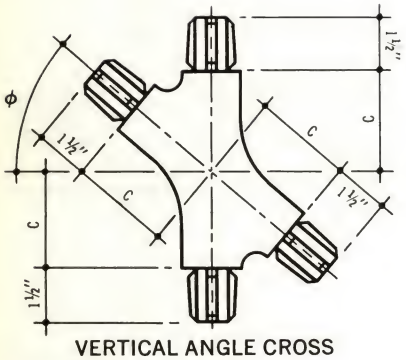


HALF HORIZONTAL ANGLE TEE
35°
No. 11035 1¼"
No. 11036 1½"
40°
No. 11037 1¼"
No. 11038 1½"



HORIZONTAL OR VERTICAL ANGLE TEE
35°
No. 11039 1¼"
No. 11040 1½"
40°
No. 11041 1¼"
No. 11042 1½"

35°, 40° FLUSH TYPE



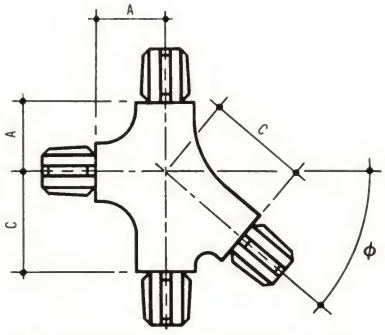
VERTICAL ANGLE CROSS

35°

No. 11043	1¼"
No. 11044	1½"

40°

No. 11045	1¼"
No. 11046	1½"



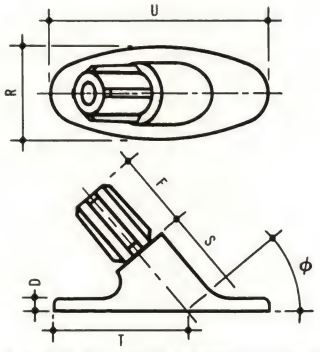
HALF VERTICAL ANGLE CROSS

35°

No. 11047	1¼"
No. 11048	1½"

40°

No. 11049	1¼"
No. 11050	1½"



ANGLE NECK FLANGE Oval Base

35°

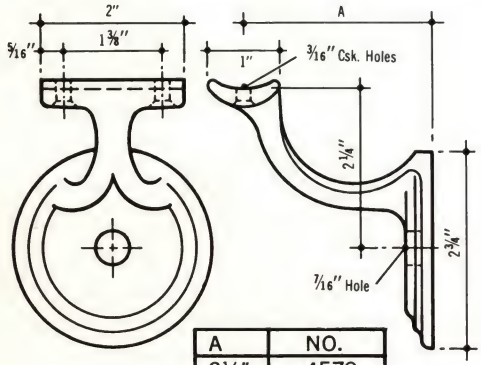
No. 11051	1¼"
No. 11052	1½"

40°

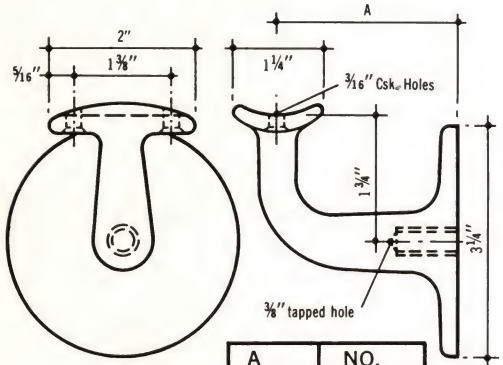
No. 11053	1¼"
No. 11054	1½"

PIPE RAIL BRACKETS

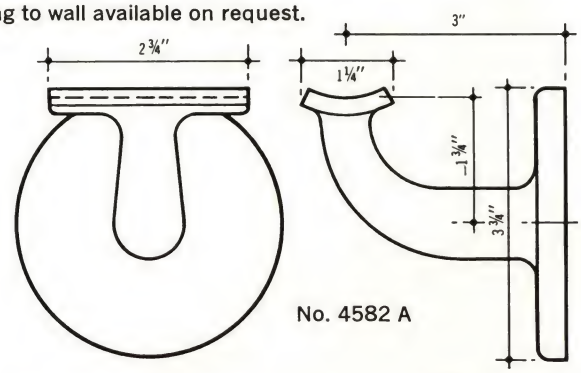
Extra long brackets—up to 5" from center of railing to wall available on request.



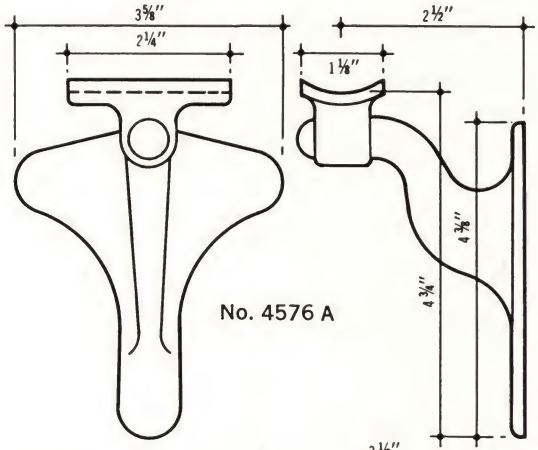
A	NO.
2½"	4579
3"	4494-3



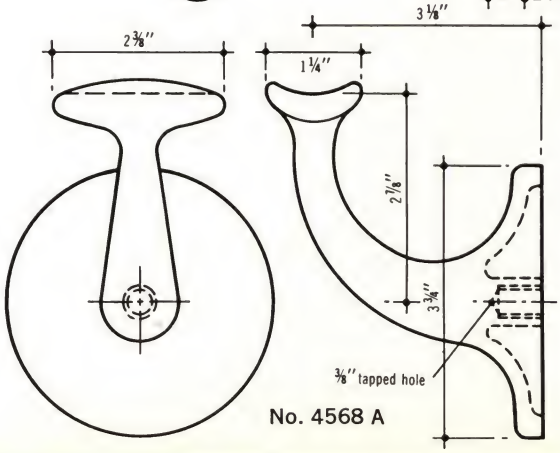
A	NO.
2½"	4593
3"	4498-3



No. 4582 A



No. 4576 A

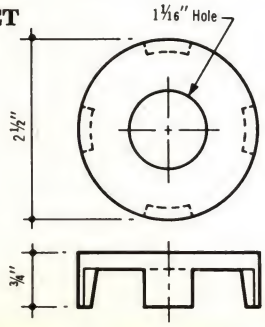


No. 4568 A

WALL BRACKET FILLER

No. 4405

CAST IRON

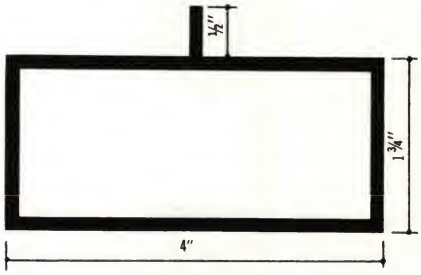


MEASUREMENTS APPROXIMATE

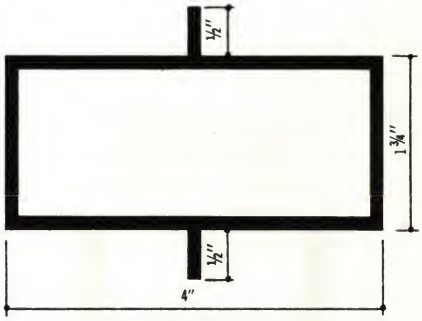
STORE FRONTS

Alloy and temper 6063-T42. Standard lengths 21′-1″.

SECTION NO.	APPROX. WT. LBS./FT.
11335B	1.682



SECTION NO.	APPROX. WT. LBS./FT.
11336B	1.756



EXTRUDED SQUARE TUBE—SQUARE CORNERS

Alloy and temper 6063-T5. Standard lengths 21′-1″.

SECTION NO.	SIZE INCHES	APPROX. WEIGHT LBS./FT.
7896	1 x 1 x ⅛	.526
7897	1½ x 1½ x ⅛	.826
13365	1¾ x 1¾ x ⅛	.974
7898	2 x 2 x ⅛	1.126
15449	2½ x 2½ x ⅛	1.426
17186	3 x 3 x ⅛	1.726
13830	4 x 4 x ⅛	2.326



EXTRUDED RECTANGULAR TUBE—SQUARE CORNERS

Alloy and temper 6063-T5. Standard lengths 21′-1″.

SECTION NO.	SIZE INCHES A B t	APPROX. WEIGHT LBS./FT.
7899	1¾ x 2¼ x ⅛	1.126
7900	1¾ x 3 x ⅛	1.350
7901	1¾ x 4 x ⅛	1.650
13459	1¾ x 4½ x ⅛	1.800
7902	1¾ x 5 x ⅛	1.950
7903	2 x 3 x ⅛	1.426
13350	2 x 5 x ⅛	2.026
13354	2 x 4 x ⅛	1.724

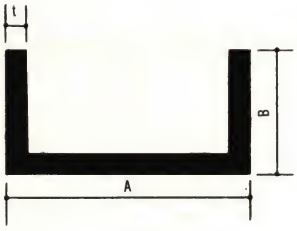




ANGLES—SQUARE CORNERS

Alloy and temper 6063-T5. Standard lengths 16′-0″.

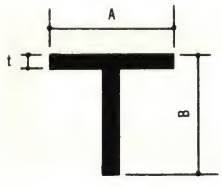
SECTION NO.	SIZE INCHES A	B	t	APPROX. WEIGHT LBS./FT.
	EQUAL ANGLES			
370	½	½	1/16	.069
563	½	½	⅛	.131
7889	⅝	⅝	⅛	.169
965	¾	¾	1/16	.109
7932	¾	¾	⅛	.206
371	1	1	1/16	.144
3562	1	1	⅛	.281
2146	1	1	3/16	.408
1803	1¼	1¼	⅛	.355
1802	1¼	1¼	3/16	.521
4630	1½	1½	⅛	.431
1804	1½	1½	3/16	.632
1820	1¾	1¾	⅛	.506
2155	2	2	⅛	.581
2284	2	2	3/16	.858
1839	2	2	¼	1.124
	UNEQUAL ANGLES			
7890	¾	⅜	1/32	.116
1846	1	½	1/32	.161
3563	1	½	⅛	.206
2280	1	¾	⅛	.244
7891	1¼	½	⅛	.244
2149	1½	¾	⅛	.319
1806	1½	1	⅛	.356
2143	2	1	⅛	.431
5497	3½	1¼	⅛	.694



CHANNELS—SQUARE CORNERS

Alloy and temper 6063-T5. Standard lengths 16′-0″.
*Standard lengths 20′-0″. †Standard lengths 22′-0″.

SECTION NO.	SIZE INCHES A	B	t	APPROX. WEIGHT LBS./FT.
7892	½	⅜	⅛	.150
4340	½	½	1/32	.148
8974	½	¾	⅛	.263
8975	⅝	⅝	⅛	.244
988	¾	⅜	⅛	.187
4339	¾	¾	⅛	.300
1269	1	½	⅛*	.263
5540	1	1	⅛	.413
3450	1¼	½	⅛*	.300
8976	1¼	1¼	⅛	.526
7893	1 7/16	½	1/32*	.254
2156	1½	½	⅛*	.330
8977	1¾	½	⅛	.374
3930	1¾	¾	⅛	.450
8978	1¾	1	⅛	.526
4391	2	½	⅛	.413
3507	2	1	⅛*	.563
8979	2¼	⅞	⅛*	.563
8980	2½	1½	⅛†	.787
7894	3	½	⅛	.563
4393	3	1	⅛	.713
8981	5	2	3/16	1.945



TEES—SQUARE CORNERS

Alloy and temper 6063-T5. Standard lengths 16′-0″.

SECTION NO.	SIZE INCHES A	B	t	APPROX. WEIGHT LBS./FT.
1358	¾	¾	⅛	.206
8982	¾	1¼	⅛	.281
8983	⅞	1¼	⅛	.300
8984	1	½	⅜	.319
8985	1	¾	⅛	.244
1213	1	1	⅛	.280
7895	1¼	⅞	⅛	.300
8986	2	¾	⅛	.394

ROD

Alloy and temper 6063-T5. Standard lengths 16′-0″.

SECTION NO.	SIZE INCHES	APPROX. WEIGHT LBS./FT.
7	½	.235
11	¾	.529
15	1	.942



SQUARE BAR

Alloy and temper 6063-T5. Standard lengths 16′-0″.

SECTION NO.	SIZE INCHES	APPROX. WEIGHT LBS./FT.
322	¼ x ¼	.076
5209	⅜ x ⅜	.169
1863	½ x ½	.300
1866	⅝ x ⅝	.468
1526	¾ x ¾	.673
1906	1 x 1	1.200
2080	1¼ x 1¼	1.875
2079	1½ x 1½	2.700



RECTANGULAR BAR

Alloy and temper 6063-T5. Standard lengths 16′-0″.

SECTION NO.	SIZE INCHES	APPROX. WEIGHT LBS./FT.
535	⅛ x ½	.076
4011	⅛ x ⅝	.094
780	⅛ x ¾	.112
536	⅛ x 1	.150
537	⅛ x 1¼	.182
538	⅛ x 1½	.224
539	⅛ x 1¾	.263
540	⅛ x 2	.300
541	3/16 x ½	.113
542	3/16 x ¾	.169
543	3/16 x 1	.226
544	3/16 x 1¼	.281
545	3/16 x 1½	.337
547	3/16 x 2	.450
1772	3/16 x 2½	.562
925	¼ x ½	.147
792	¼ x ⅝	.188
3629	¼ x ¾	.226
1495	¼ x 1	.300
1403	¼ x 1¼	.376
2205	¼ x 1½	.450
2008	¼ x 1¾	.526
2062	¼ x 2	.582
1773	¼ x 2½	.750
1754	¼ x 3	.900
548	⅜ x ½	.225
549	⅜ x ⅝	.278
793	⅜ x ¾	.338
1497	⅜ x 1	.450
1427	⅜ x 1¼	.561
1694	⅜ x 1½	.676
2066	⅜ x 2	.900
1755	⅜ x 3	1.350
1536	½ x ¾	.449
1469	½ x 1	.600
1684	½ x 1¼	.750
1696	½ x 1½	.882
2053	½ x 2	1.200
1769	½ x 2½	1.515
1437	½ x 3	1.800
1501	¾ x 1½	1.320
2052	¾ x 2	1.764
1733	1 x 1½	1.818
2038	1 x 2	2.400







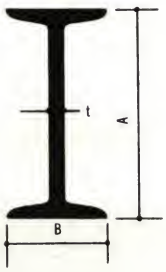




All structurals: Alloy and temper 6061-T6. Standard lengths 20′-0″ and 25′-0″.

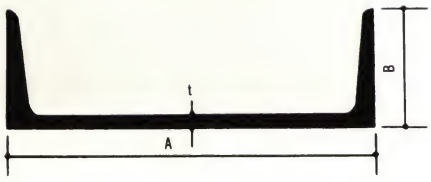
ANGLES—STANDARD STRUCTURAL

SECTION NO.	SIZE INCHES A	B	t	APPROX. WEIGHT LBS./FT.
	EQUAL ANGLES			
5640	1	1	x 3/16	.41
4613	2	2	x 3/16	.87
1822	2	2	x 1/4	1.14
2695	3	3	x 1/4	1.73
1102	3	3	x 3/8	2.55
4607	4	4	x 1/4	2.35
5175	4	4	x 3/8	3.46
	UNEQUAL ANGLES			
3661	3	2	x 1/4	1.44
5569	4	3	x 3/8	3.01



I BEAMS—STANDARD STRUCTURAL

SECTION NO.	SIZE INCHES A	B	t	APPROX. WEIGHT LBS./FT.
2169	3	2.33	x .170	2.02
2655	4	2.66	x .190	2.72
2653	5	3	x .210	3.53
4620	6	3.33	x .230	4.43
5196	8	4	x .270	6.31
4721	10	4.66	x .310	8.73



CHANNELS—STANDARD STRUCTURAL

SECTION NO.	SIZE INCHES A	B	t	APPROX. WEIGHT LBS./FT.
2645	4	1.58	x .180	1.88
2642	5	1.75	x .190	2.36
2600	6	.225	web	3.07
3578	8	2.29	x .250	4.34
2599	10	2.6	x .240	5.39
5193	12	3.17	x .300	7.54

SHEET AND PLATE

ALLOY AND TEMPER	THICKNESS INCHES	SIZE INCHES
5005-H14 3003-H14	.020	36 x 96
5005-H14 3003-H14	.025	36 x 96
5005-H14 3003-H14	.025	36 x 120
5005-H14 3003-H14	.032	36 x 120
5005-H14 3003-H14	.032	48 x 144
5005-H14 3003-H14	.040	36 x 120
5005-H14 3003-H14	.040	48 x 144
5005-H14 3003-H14	.050	36 x 120

ALLOY AND TEMPER	THICKNESS INCHES	SIZE INCHES
5005-H14 3003-H14	.050	48 x 144
5005-H14 3003-H14	.063	48 x 144
5005-H14 3003-H14	.080	48 x 144
5005-H14 3003-H14	.090	48 x 144
5005-H14 3003-H14	.125	48 x 144
5005-H14 3003-H14	.125	60 x 144
3003-F	.250	48 x 144
3003-F	.375	36 x 96



PLAIN FINISHING SHEET

Alloy and temper RF10-H14.

THICKNESS INCHES	SIZE INCHES
.020	36 x 96
.032	36 x 96
.032	36 x 120
.032	48 x 96
.032	48 x 144
.040	36 x 96
.040	36 x 120
.040	36 x 144
.040	48 x 96
.040	48 x 120
.040	48 x 144
.050	36 x 96
.050	36 x 120
.050	48 x 120

THICKNESS INCHES	SIZE INCHES
.050	48x144
.063	36x120
.063	48x120
.063	48x144
.080	48x120
.080	48x144
.090	36x96
.090	48x120
.090	48x144
.125	36x96
.125	48x120
.125	48x144
.250	36x96



TREAD PLATE

ALLOY AND TEMPER	THICKNESS INCHES	SIZE INCHES
6061-T6	.102	48x192
6061-T6	.125	48x192
6061-T6	.188	48x192

ALLOY AND TEMPER	THICKNESS INCHES	SIZE INCHES
6061-T6	.188	60x192
6061-T6	.250	48x192
6061-T6	.250	60x192

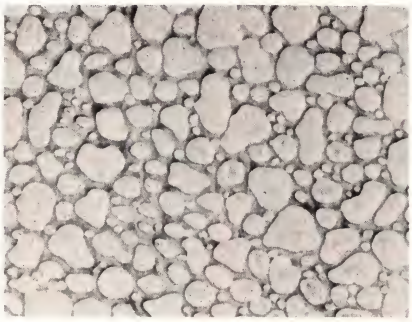


ONE SIDE EMBOSSED SHEET

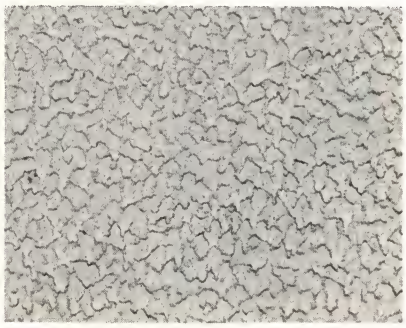
Listed alloys and tempers are excellent for general architectural application. Other alloys and tempers are available.



	THICKNESS	SIZE	ALLOY	TEMPER
FINE BARK M-101	.025"-.064"	48" x 144"	3003, 5005	H154



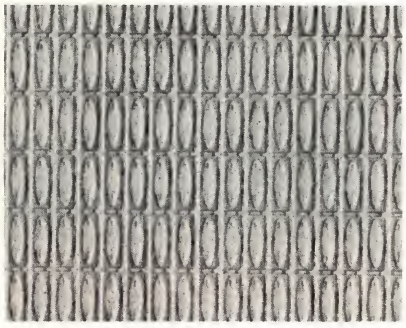
	THICKNESS	SIZE	ALLOY	TEMPER
PEBBLEGRAIN M-102	.025"-.064"	48" x 144"	3003, 5005	H154



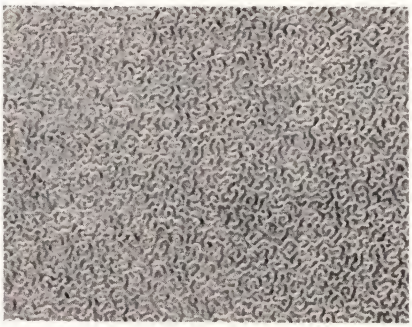
	THICKNESS	SIZE	ALLOY	TEMPER
STUCCO M-103	.025"-.064"	48" x 144"	3003, 5005	H154



	THICKNESS	SIZE	ALLOY	TEMPER
FLUTED M-104	.040"-.125"	48" x 144"	3003, 5005	H154



	THICKNESS	SIZE	ALLOY	TEMPER
SMALL OVAL A-107	.025"-.064"	20" x 144"	3003, 5005	H154

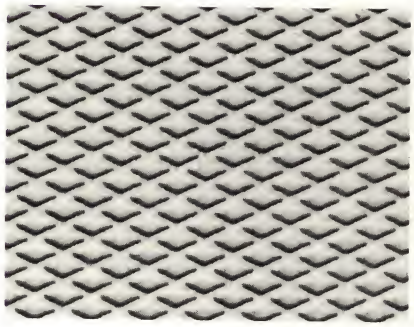


	THICKNESS	SIZE	ALLOY	TEMPER
PINSEAL M-108	.020"-.064"	48" x 144"	3003, 5005	H154

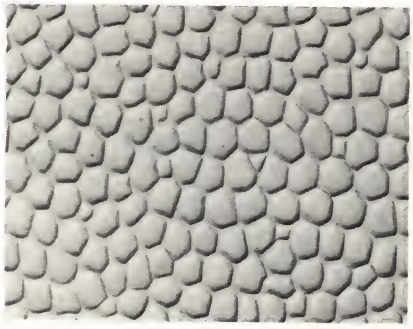
TWO SIDES EMBOSSED SHEET

Listed alloys and tempers are excellent for general architectural application. Other alloys and tempers are available.

	THICKNESS	SIZE	ALLOY	TEMPER
DIAMOND M-201	.010"-.019"	36" x 144"	3003, 5005	H154
	.020"-.064"	48" x 144"	3003, 5005	H154



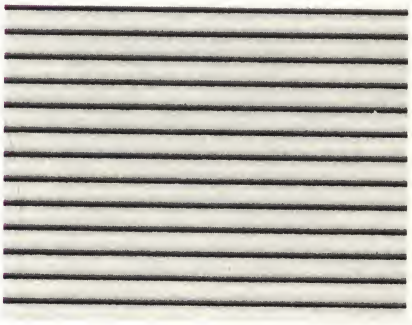
	THICKNESS	SIZE	ALLOY	TEMPER
HAMMERED	.010"-.019"	36" x 144"	3003, 5005	H154
M-202, A-202	.020"-.064"	48" x 144"	3003, 5005	H154

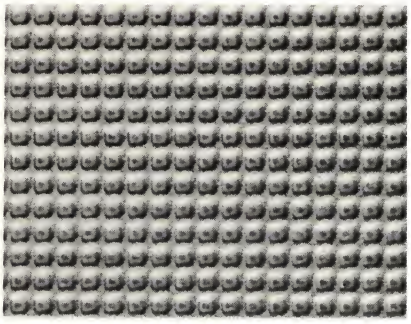


	THICKNESS	SIZE	ALLOY	TEMPER
LEATHERGRAIN	.010"-.019"	36" x 144"	3003, 5005	H154
M-203, A-203	.020"-.064"	48" x 144"	3003, 5005	H154

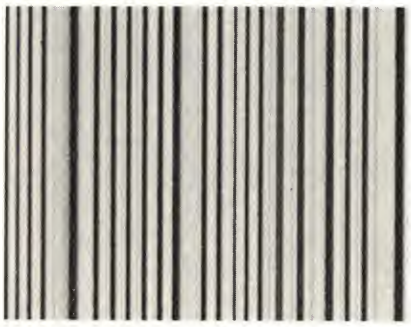


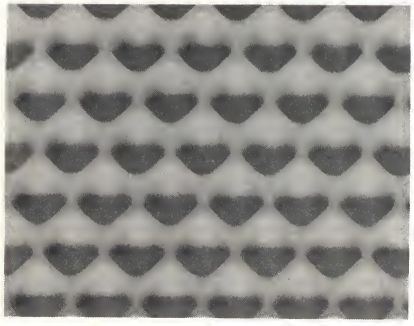
	THICKNESS	SIZE	ALLOY	TEMPER
RIB LENGTHWISE	.010"-.019"	36" x 144"	3003, 5005	H154
M-204	.020"-.064"	48" x 144"	3003, 5005	H154











TWO SIDES EMBOSSED SHEET

Listed alloys and tempers are excellent for general architectural application. Other alloys and tempers are available.

	THICKNESS	SIZE	ALLOY	TEMPER
SQUARE M-205, A-205	.010"-.019"	36" x 144"	3003, 5005	H154
	020"-.064"	48" x 144"	3003, 5005	H154

	THICKNESS	SIZE	ALLOY	TEMPER
STUCCO M-206, A-206	.010"-.019"	36" x 144"	3003, 5005	H154
	.020"-.064"	48" x 144"	3003, 5005	H154

	THICKNESS	SIZE	ALLOY	TEMPER
WOODGRAIN M-207	.010"-.019"	36" x 144"	3003, 5005	H154
	.020"-.064"	48" x 144"	3003, 5005	H154

	THICKNESS	SIZE	ALLOY	TEMPER
POLYGON M-209	.025"-.064"	48" x 144"	3003, 5005	H154

ARCHITECTURAL COLORWELD® COIL and SHEET

Now you can put dramatic color and the convenience of pre-finished surfaces into architectural design and construction using Reynolds Colorweld Coil and Sheet. The rich baked enamel surface stays bright and attractive because it is bonded to the aluminum by the exclusive, roller enamelled Colorweld process. Saves time, labor and money because there is no site painting to do. And you have complete control of color and uniformity.

Colorweld can be bent, stamped, punched and laminated without harming the tough, abrasive-resistant enamel coating. These advantages combined with the lightweight, rustfree strength qualities of architectural aluminum give you a new world of possibilities in architectural design. Exterior and interior panels, copings, gravel stops, trim—any applications where sheet aluminum can be used—are within the capability of Colorweld Coil and Sheet. Your Reynolds distributor can supply full information and color samples.

COLORWELD STANDARD AND SPECIAL COLORS

Select from twenty standard colors always available, or Reynolds can match any color or gloss in either exterior or interior finishes. Samples of standard colors on aluminum stock are available on request.

Hunter Red	Imperial Maroon
Twilight Orange	Fern Green
Ivy Green	Terra Cotta
Cadet Gray	Vivid Cream
Pennant Blue	Autumn Brown
Jonquil Yellow	Pastel Pink
Raven Black	Pastel Blue
Polar White	Pastel Gray
Heron Blue	Pastel Beige
Mocha Tan	Pastel Green

SPECIFICATIONS AND AVAILABILITY SCHEDULES

ALLOY: 1100, 3003, 5005, 5050, or 5052.

SIZE:

Coil Stock—Widths from 1″ to 60″ in all thicknesses.
Flat Sheet:

	LIMITS (INCHES)		
	THICKNESS INCHES	WIDTHS MIN. & MAX.	LENGTH MIN. & MAX.
	.016-.018	1-36	12-144
	.019-.031	1-36 36-48	12-144 36-180
	.032-.039	1-36 36-60	12-144 36-220
	.040-.050	1-36 36-60	12-144 36-220
	.050-.064	36-60	36-220

TEMPER:

	MAXIMUM WIDTH OF FINISHED STRIP* THICKNESS OF METAL			
TEMPER	1″-18″	18″-24″	24″-36″	36″-60″
0	.016″-.064″	.016″-.064″	.016″-.051″	Subject to Inquiry
H12	.014″-.064″	.016″-.064″	.016″-.051″	.019″-.064″
H14	.012″-.064″	.016″-.064″	.016″-.051″	.019″-.064″.
H16	.010″-.064″	.016″-.064″	.016″-.051″	.019″-.064″
H18	.008″-.064″	.016″-.064″	.016″-.051″	.019″-.050″

*Painted in multiples—painted edges subject to inquiry.

EMBOSSING:

Embossing patterns listed in table are standard for Colorweld coil and flat sheet and are pictured on pages 20, 21 and 22. Other embossing patterns are subject to inquiry.

	THICKNESSES AVAILABLE	
PATTERNS	1″-36″ WIDE	36″-60″ WIDE
Stucco Embossed (M103, M206)	.016″-.032″	.019″-.064″
Woodgrain Embossed (M207)	.016″-.032″	.019″-.064″
Hammered Embossed (M202)	.016″-.032″	.019″-.064″
Leathergrain Embossed (M203)	Not Available	.019″-.064″

FINISH:

Durecon—Alkyd nitrogen enamel having moderate formability.
Econoflex—Vinyl alkyd enamel having good formability.
Duraflex—Vinyl enamel having excellent formability.

WIDTHS AVAILABLE (All Items Enamelled Both Sides)

	SMOOTH	STUCCO EMBOSSED (M103, M206)	WOODGRAIN EMBOSSED (M207)	HAMMERED EMBOSSED (M202)	LEATHER-GRAIN EMBOSSED (M203)
Durecon	1″-60″	Not Available	Not Available	Not Available	Not Available
Econoflex	1″-60″	1″-60″	1″-60″	1″-60″	36″-60″
Duraflex	1″-60″	1″-60″	1″-60″	1″-60″	36″-60″

RELY ON THESE REYNOLDS ALUMINUM DISTRIBUTORS

All the items covered in this catalog are warehoused by the authorized Reynolds Aluminum Distributor located conveniently near you. Thus, you get quick action on your orders—have aluminum *where* you want it, *when* you want it. Inventories are maintained to provide you with on-the-spot, "one source" service. Consider your Distributor's warehouse an extension of your own stocking facility. He stocks aluminum until you *need* it!

Reynolds Aluminum distributors are also equipped to provide such service as slitting, shearing and sawing. You buy just the aluminum you need for your requirements, ready for fabrication.

Distributor personnel are trained by Reynolds to help you use aluminum most advantageously. Be sure to look for your Reynolds Aluminum Distributor under "Aluminum" in the Yellow Pages of your local telephone directory.

See A.I.A. File 12-C-3 for Copings and Gravel Stops Sections.

ALABAMA
Reynolds Aluminum Supply Co., Birmingham

ARIZONA
Reynolds Aluminum Supply Co., Phoenix

CALIFORNIA
American Building Materials Co., Inc., Sacramento
Bralco Metals, Inc., Los Angeles
Metals Supply, Emeryville
Joseph T. Ryerson & Son, Inc., Los Angeles, San Francisco
Pittsburgh-Des Moines Steel Co., Stockton
Rebco, Inc., Los Angeles
Reynolds Aluminum Supply Co., Fresno, Los Angeles, North Hollywood, Ontario, Sacramento, San Diego, San Francisco

COLORADO
Silver Steel Co., Denver

CONNECTICUT
American Steel & Aluminum Corp., Hartford
Peter A. Frasse & Co., Wethersfield
Joseph T. Ryerson & Son, Inc., Wallingford
Sheet Metal Mfg. Co., Inc., Waterbury

FLORIDA
Reynolds Aluminum Supply Co., Miami

GEORGIA
Reynolds Aluminum Supply Co., Atlanta, Savannah
Southern Aluminum Finishing Co., Atlanta

HAWAII
American Factors, Ltd., Honolulu

ILLINOIS
Aluminum Distributors, Inc., Forest Park
J. G. Braun Co., Skokie
Jones & Laughlin Steel Whse. Div., Chicago
Kasle Steel Corp., Chicago
Joseph T. Ryerson & Son, Inc., Chicago
Benjamin Wolff & Co., Franklin Park

INDIANA
Jones & Laughlin Whse. Div., W. J. Holliday Co., Indianapolis
Kasle Steel Corp., South Bend
United States Aluminum Co., South Bend
Joseph T. Ryerson & Son, Inc., Indianapolis

IOWA
Pittsburgh-Des Moines Steel Co., Des Moines
Robinson Bros. & Co., Div. of Ft. Dodge Iron & Metal, Des Moines

KANSAS
Industrial Metals, Inc., Wichita

KENTUCKY
Jones & Laughlin Steel Whse. Div., Louisville
Reynolds Aluminum Supply Co., Louisville

LOUISIANA
Jones & Laughlin Steel Whse. Div., New Orleans

MARYLAND
Clendenin Brothers, Inc., Baltimore

MASSACHUSETTS
American Steel & Aluminum Corp., Cambridge
The Congdon & Carpenter Co., Inc., Fall River
Joseph T. Ryerson & Son, Inc., Boston

MICHIGAN
Haven-Busch & Sons, Grandville
Jones & Laughlin Steel Whse. Div., Detroit
Kasle Steel Corp., Detroit, Grand Rapids
McDonnell Brothers, Inc., Detroit
Mt. Morris Bldg. Products, Inc., Mt. Morris

MINNESOTA
MacArthur Co., St. Paul
Vincent Brass & Aluminum Co., Minneapolis, St. Paul

MISSOURI
Industrial Metals, Inc., Kansas City, St. Louis
Joseph T. Ryerson & Son, Inc., St. Louis

NEBRASKA
United Brass & Aluminum Co., Inc., Omaha

NEW JERSEY
Julius Blum & Co., Inc., Carlstadt
Edgecomb Steel & Aluminum Corp., Hillside
Peter A. Frasse & Co., Inc., Lyndhurst
Mapes & Sprowl Steel Co., Union
Passaic Metal Products, Inc., Passaic
Rebco-Metro, Inc., West New York
Joseph T. Ryerson & Son, Inc., Jersey City

NEW MEXICO
New Mexico Tank & Culvert Co., Albuquerque
Silver Steel Co., Albuquerque

NEW YORK
J. G. Braun Co., New York
Peter A. Frasse & Co., Inc., Buffalo, New York, Syracuse
Long Island Tinsmith Supply Corp., Richmond Hill
Joseph T. Ryerson & Son, Inc., Buffalo
Sheet Metal Mfg. Co., Inc., Brooklyn, White Plains

NORTH CAROLINA
Reynolds Aluminum Supply Co., Raleigh
Joseph T. Ryerson & Son, Inc., Charlotte

OHIO
Hamilton Steel Warehouse, Jones & Laughlin Steel Whse. Div., Cleveland
Jones & Laughlin Steel Whse. Div., Cincinnati
Kasle Steel Corp., Cleveland
Mutual Mfg. & Supply Co., Cincinnati
Joseph T. Ryerson & Son, Inc., Cincinnati, Cleveland
Vorys Brothers, Inc., Columbus

OKLAHOMA
Industrial Metals, Inc., Tulsa

OREGON
Reynolds Aluminum Supply Co., Portland

PENNSYLVANIA
Athos Steel Service, Philadelphia
Peter A. Frasse & Co., Inc., Philadelphia
Merchant & Evans Co., Philadelphia
Pennsylvania Industrial Supplies Co., Inc., Pittsburgh
Joseph T. Ryerson & Son, Inc., Philadelphia, Pittsburgh

RHODE ISLAND
The Congdon & Carpenter Co., Inc., Providence

SOUTH CAROLINA
Reynolds Aluminum Supply Co., Columbia

TENNESSEE
Jones & Laughlin Steel Whse. Div., Memphis, Nashville
Reynolds Aluminum Supply Co., Memphis, Nashville

TEXAS
Allied Metals, Inc., Houston
Joseph T. Ryerson & Son, Inc., Dallas, Houston

UTAH
Silver Steel Co., Salt Lake City

VIRGINIA
Reynolds Aluminum Supply Co., Richmond

WASHINGTON
Reynolds Aluminum Supply Co., Seattle, Spokane

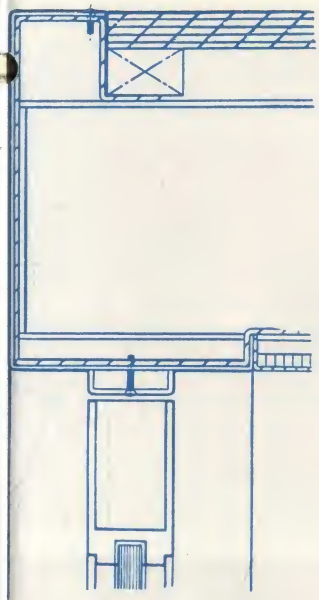
WISCONSIN
Joseph T. Ryerson & Son, Inc., Milwaukee

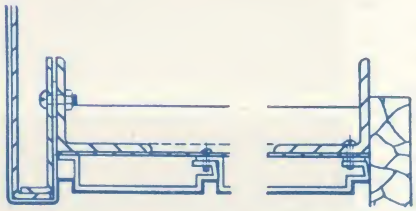


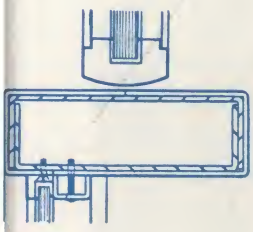
REYNOLDS METALS COMPANY RICHMOND 18, VIRGINIA

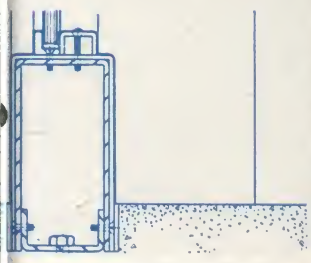
210-1-3 (959)

Litho in U.S.A.







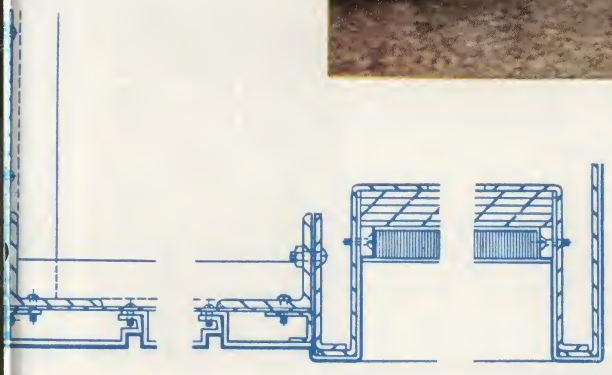


ANACONDA
architectural metals

copper • brass
bronze • nickel silver



Land Title Building, Philadelphia, Pennsylvania (see page 2)



The American Brass Company

Waterbury 20, Connecticut

ANACONDA
architectural bronze

LAND TITLE BUILDING
PHILADELPHIA, PENNSYLVANIA

The entrances and lobby of this building have been renovated and modernized, using polished granite and marble, and architectural bronze extruded shapes and sheet metal with a satin finish in natural color. Wall panels in the lobby (at right) are formed of interlocking bronze extrusions with 3″ exposed surfaces. Elevator entrances and directory frame are assembled with bronze extruded shapes and sheet metal. Vestibules and door openings (cover illustration) are fabricated with bronze extruded shapes and bronze sheet and strip.

Architects, Thalheimer & Weitz, Philadelphia; Fabricator, John G. Leise Metal Works, Philadelphia; Elevator entrances, W. S. Tyler Company, Cleveland, Ohio; Exterior doors, Revolving door and Entrance Division, International Steel Company, Evansville, Indiana.



UNITED STATES NATIONAL BANK
DENVER, COLORADO

Foot of spiral stairway, integrating several floor levels. Handrails are made of formed red brass strip, reinforced with red brass rod; the balusters are tubular red brass sleeves over steel rod. Column is wrapped with bronze wire mesh, partially colored to give unusual black-and-gold effect.

Architect, James S. Sudler, Denver; Associated Interior Designers, Maria Bergson Associates, New York, N. Y.; Fabricator, Zimmerman Ornamental Bronze and Iron Works, Denver; Bronze mesh, W. S. Tyler Company, Cleveland, Ohio.



UNITED DAUGHTERS OF THE CONFEDERACY
HEADQUARTERS BUILDING
RICHMOND, VIRGINIA

The bronze entrance to this dignified building is composed of a red brass sheet facing over a tubular steel frame. Panels are raised, dished or flat with cast bronze ornamentation, and are secured with extruded bronze shapes and bars.

Architect, Ballou and Justice, Richmond; Fabricator, Usona Manufacturing, St. Louis, Missouri.



CREATIVE DESIGN IN WALLS OF GLASS AND ARCHITECTURAL BRONZE

TWO PRESENTATIONS OF CURTAIN-WALL DESIGN FOR BUILDINGS OF DIFFERENT SIZE AND FUNCTION

The two buildings illustrated here are of the same basic curtain-wall design, employing the same glass and bronze materials, but the designers endowed each with a different appearance and impression in keeping with the functions of the two structures.

The 38-story Seagram Building, a distinguished addition to the skyline of New York City, is an office building of outstanding beauty and distinction. The Northeastern Pennsylvania National Bank and Trust Company Building in Scranton, Pennsylvania, presents an appearance of enduring beauty and stability significant to the institution of banking.

The designers of both buildings used extruded architectural bronze shapes for the linear members of the curtain walls and heavy-gage Muntz Metal sheets for the spandrels. The shadow lines are bold by virtue of the large extruded bronze mullions, yet the detail of the smaller extruded bronze members is superfine. The bronze faces of both buildings were treated to obtain a deep statuary bronze finish.

The mullion spacing in the Seagram Building is proportionately closer than that of the bank building and, because of its height, creates the impression of a bronze shaft. The architecture of the Northeastern Pennsylvania National Bank and Trust Company Building consists of an abundance of glass with a well proportioned framework of bronze.



Illustration upper right: Approach to the 52nd Street entrance of the Seagram Building, New York City. Architects, Mies van der Rohe, Chicago, and Philip Johnson, New York; Associate Architects, Kahn and Jacobs, New York; Fabricator, General Bronze Corporation, Garden City, N. Y.



Illustration right: Northeastern Pennsylvania National Bank and Trust Company, Scranton, Penn., George M. D. Lewis, Scranton, Architect. Standard Iron Works, Scranton, Fabricator.

550 SOUTH FLOWER BUILDING, LOS ANGELES, CALIFORNIA

The decorative architecture of this building reflects the imaginative use of rich and colorful materials. The architecture combines 13% extruded nickel silver sections and 15% nickel silver sheet metal with polished black-and-white marble.

The lobby has a wainscoting of 13% extruded nickel silver, and the grid for the luminous ceiling is composed of nickel silver extruded sections and sheet metal. Elevator doors are of nickel silver sheet metal formed to give a fluted effect.

Architects, Claud Beelman & Associates; Fabricator, Cochran-Izant & Co.; Elevators, A. J. Bayer Co.; all of Los Angeles.



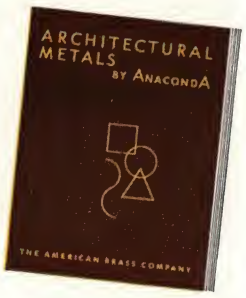
SCOPE OF DESIGN WITH ANACONDA ARCHITECTURAL METALS

KRESGE CHAPEL
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASSACHUSETTS

The scintillating reflections of warm light are from the delicate reredos (screen of brass and bronze) behind the altar in this nonsecterian chapel of striking cylindrical design. This unusual screen is an outstanding example of welded sculpture.

Architect, Eero Saarinen, Bloomfield Hills, Michigan; Sculptor, Harry Bertoia, Bally, Pennsylvania.





The illustrations in this insert disclose in a limited way the almost unlimited scope of creative design possible with Anaconda Architectural Metals. Methods by which the variety of textures, forms and warm, rich colors of these metals have been utilized to translate architectural concepts into reality are detailed in a new publication, "Architectural Metals by Anaconda." It is the first comprehensive book on the architectural uses of copper and copper alloys, and covers both interior and exterior applications.

This 64-page book, illustrated in full color, gives practical and detailed information on the available metals, their compositions, colors, forms and architectural applications. It contains instructions for obtaining various finishes and for economically maintaining them. There are many pages of fabricators' shop drawings and specifications for fabricating, erecting and finishing. We would like to send you a copy.

ANACONDA
from mine to consumer

THE AMERICAN BRASS COMPANY

WATERBURY 20, CONNECTICUT

MANUFACTURING PLANTS

Ansonia, Conn. • Torrington, Conn.
Waterbury, Conn. • Buffalo, N. Y.
Detroit, Mich. • Kenosha, Wis.
Paramount, Calif.
New Toronto, Ontario, Canada
French Small Tube Division, Waterbury, Conn.
Anaconda Metal Hose Division
Waterbury, Conn. • Mattoon, Ill.
Fabricated Metal Goods Division, Waterbury, Conn.

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Charlotte 2, N. C.
Chicago 39, Ill.
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Providence 3, R. I.
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6b
Hy

THE LATEST WORD IN SHEET METAL...

HYDRO-T-METAL

. . . An amazingly versatile new sheet metal that provides specific fabricating, cost and weight-saving advantages. *T-Metal* retains all of the basic advantages inherent in zinc:

- corrosion and rust resistance
- malleability
- solder-ability
- light weight
- economy

— and provides in addition:

- the structural strength
- stability and
- scope of other non-ferrous metals, including
- the ability to be extruded
- fusion welded
- perforated.

Perfected after 10 years of exhaustive research and intensive testing, *T-Metal* is the latest achievement in zinc-based alloys.

...FROM A NAME THAT'S BEEN TRUSTED FOR 90 YEARS

ILLINOIS ZINC COMPANY

DIVISION OF



HYDROMETALS, INC.

HYDRO-T-METAL

WHAT IT IS...

Hydro-T-Metal is a totally new 'master-mix' alloy of titanium, copper, elements "X" and zinc perfected and produced by HYDROMETALS, INC. it is more versatile than any zinc-based alloy ever produced . . . the most useful sheet metal available today.

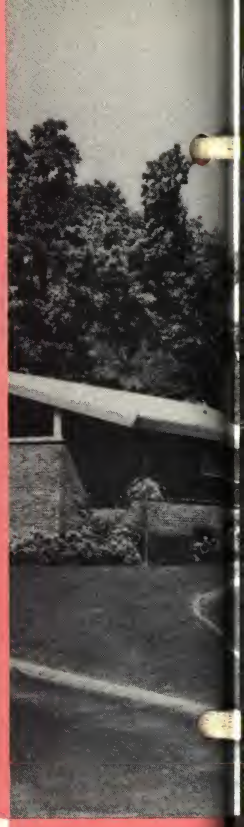
HOW IT DIFFERS FROM OTHER ZINC-BASED ALLOYS...

T-Metal is tough! It boasts a creep-resistance 350 times that of simply copper-hardened zinc. *T-Metal* resists stretching or sagging under tension or under temperature change, thereby counteracting the tendency that has limited zinc-based alloys as structural materials.

Dead weight loads of 12,000 lbs./sq. in. cause other zinc alloys to stretch as much as 6% in one hour, and to rupture in a few hours. *T-Metal* shows practically no stretch when exposed to the same pressure, and does not fail when left under that load for weeks.

Ordinary zinc alloys tend to show grain growth and resulting structural weakness when subjected to temperatures in the 350 to 450°F. range for several hours. *T-Metal* actually improves in stability when treated at temperatures of 480°F. . . . its creep-resistance increases after several hours at that temperature.

WHY T-METAL IS SUPERIOR... There are two reasons: 1. The carefully regulated way in which exact quantities of titanium are added to the secret alloy; and 2. HYDROMETALS' own special rolling and heat-treatment processes to stabilize the new alloy.



FABRICATING ADVANTAGES

1. *T-Metal* solders easily . . . (Aluminum does not.)
2. *T-Metal* can be fusion welded . . . (Other zinc alloys cannot.)
3. *T-Metal* can be deep drawn without stage annealing . . . (Unlike aluminum, copper and brass, it does not work harden.)
4. *T-Metal* is excellent for severe forming . . . (Cold rolled copper and aluminum are not.)
5. *T-Metal* machines well.
6. *T-Metal* can be readily spun, extruded, stamped, coined, embossed and perforated.
7. *T-Metal* is particularly easy on tools and dies . . . (It has saved as much as 25% on die and tool life.)
8. *T-Metal* can be subjected to high temperature processing (up to 500 degrees F.) It takes nickel and chrome plating and high polishing beautifully (Other zinc-based alloys do not.)
9. *T-Metal* is self-lubricating for purposes of roll forming.
10. *T-Metal* will not rust or stain surrounding areas . . . (Copper and steel will.)
11. *T-Metal* has extraordinary corrosion resistance in coastal (saline) and industrial atmospheres . . . (It is superior to aluminum; it will not pit.)
12. *T-Metal* can be embedded in concrete and mortar without protective coating (aluminum cannot) and, of course, in earth (which steel cannot.)
13. *T-Metal* is easily adaptable to color coating.
14. *T-Metal* is an ideal material for electrical uses because of its good conductivity.
15. *T-Metal* excels for shielding because of its non-magnetic quality . . . (It is superior to aluminum and, of course, to copper and steel.)
16. *T-Metal* is non sparking.
17. *T-Metal* is lightweight (.258 pounds per cubic inch) —20% lighter than copper, 16% lighter than brass, and 9% lighter than stainless steel.
18. One pound of *T-Metal* will therefore cover correspondingly more area than a pound of steel or of copper or of brass.

ENGINEERING PROPERTIES

PRODUCTION METHOD

	(Hot) Rolled Strip	(Cold) Rolled Sheet
Composition Range %	Cu .75-1.25 Ti .10-.40 Elements "x" Balance Hi Grade Zn	Cu .30-.70 Ti .10-.40 Elements "x" Balance Hi Grade Zn
PHYSICAL PROPERTIES		
Density, gm/cc	7.14	7.14
Density, lb./cu. in.	0.258	0.258
Melting point, °F.	792	792
Specific heat, cal/gm at 68-212°F.	0.096	0.096
Coeff. of expansion per °F.	12.8×10^{-6}	12.8×10^{-6}
Electr. resistivity, microhm-cm at 68°F.	6.31	6.31
MECHANICAL PROPERTIES		
Tensile Strength, psi:[1]	30.000, 38.000	27.000, 34.000
Elongation in 2", %[1]	25, 13	20, 11
Hardness, Rock (15T):	67	67
Dynamic ductility, mils	295	280
Bends 1.2	2T, 2T	2T, 2T
Creep rate, expressed as number of days per 1% elongation at 70°F. under stress of 8000 psi	714	714

[1]Where two figures separated by a comma are given, the first represents measurement parallel to grain, the second perpendicular to grain.

TYPICAL T-METAL USES



Lower building costs are the prospect wherever *T-Metal* is used instead of other non-ferrous metals . . . for downspouts, cupola or bay window roofing, valleys, flashings even storm/screen combination frames.

T-Metal sheet is the key to substantial fabricating and cost-saving advantages in curtain-wall construction . . . where appearance and longevity really count.





The spires of Notre Dame Cathedral, a Parisian landmark for centuries, are living testimonials to the durability and practicality of zinc for roofing materials—a job for which *T-Metal* has even more excellent qualifications.

T-Metal's uses are virtually numberless. It's applications extend throughout industry. One 'Big Three' American auto maker, for instance, estimates that there are thousands of possible *T-Metal* uses in a single car now being produced.

Here are a very few ways in which *T-Metal* serves you:

CONSTRUCTION

Corner Beading
Corrugated Sheets
Counterflashing
Curtain Walls
Do-it-yourself Sheet Metal
Door and Window Frames
Duct Work
Expanded Metal Lath
Gravel Stop and Fascias
Gutter and Downspout
Roofing
Shingles
Siding
Stone Anchors
Termite Shields
Terrazzo Strip
Tubing
Vapor Barriers
Venting

ESTIMATED SAVINGS

Using current base-price-per-100-pounds as a norm (100%), here are typical cost savings (in percentages) possible where *T-Metal* is used — instead of brass, stainless steel or copper — for jobs that it performs at least equally as well.

	Sheet	Strip	Plate
70-30 Yellow Brass	100%	100%	100%
T-Metal	74%	74%	67.4%
Saving	26%	26%	32.6%
18-8 Stainless	100%	100%	100%
T-Metal	43.5%	54.3%	48.5%
Saving	56.5%	45.7%	41.5%
Hot Rolled Copper	100%	100%	100%
T-Metal	65%	65%	59%
Saving	35%	35%	31%

RANGE OF SIZES AVAILABLE

AS STRIP:

In any thickness from .004" minimum to .25" maximum (.020", .025" and .027" are the standard gauges)

In any width from .25" minimum to 54" maximum (widths up to 80" are available on special order)

In coil sizes up to 175 pounds per inch of width

AS SHEET:

In any thickness from .020" minimum to .125" maximum (.020", .025" and .027" are the standard gauges) (sheet and plate stock heavier than .125" is available in smaller sizes)

Cut to the following standard sizes:

20" x 96"	30" x 120"
24" x 96"	36" x 96"
30" x 96"	36" x 120"

Cut also to the following sizes:

48" x 96"	54" x 96"
48" x 120"	54" x 120"

AS CORRUGATED SHEET:

In thickness of .020" and .032"

In widths of 26" and 27½", 39" and 40½"

In lengths from 6' to 12'
(Both 26" and 27½" widths have a 24" covering width. Both 39" and 40½" widths have a 37" covering width).

T-METAL PRODUCTION FACILITIES

T-Metal is being produced at HYDROMETALS' sheet mill, Peru, Illinois, and strip mill, Chicago, Illinois. These represent the most modern rolling facilities in the zinc industry. The latest equipment for stretcher-levelling, shearing, slitting and cutting to length is employed.

It is also being produced at the Madison, Illinois, mills of the Dow Metal Products Co. Division of the Chemical Company. Dow's plant is one of the largest, most modern non-ferrous metal-working installations in the world, with its seven rolling mills — two of them 84 inches wide. The efficiency and capacity of Dow's Madison plant far surpass those of any other in the zinc industry.

Ingots of *Hydro-T-Metal* weighing almost 8,000 pounds — believed to be the heaviest slabs of non-ferrous metal ever converted to sheet — are being rolled and coiled at Madison. These record ingots are more than five times larger than that of any zinc-based alloy ever fabricated.

WRITE FOR DETAILED INFORMATION, PRICES, AND THE NAME OF THE HYDRO-T-METAL DISTRIBUTOR NEAREST YOU.

THE ILLINOIS ZINC COMPANY

DIVISION OF

HYDROMETALS, INC.

405 LEXINGTON AVENUE
NEW YORK 17, NEW YORK
SUITE 415 YUkon 6-3636

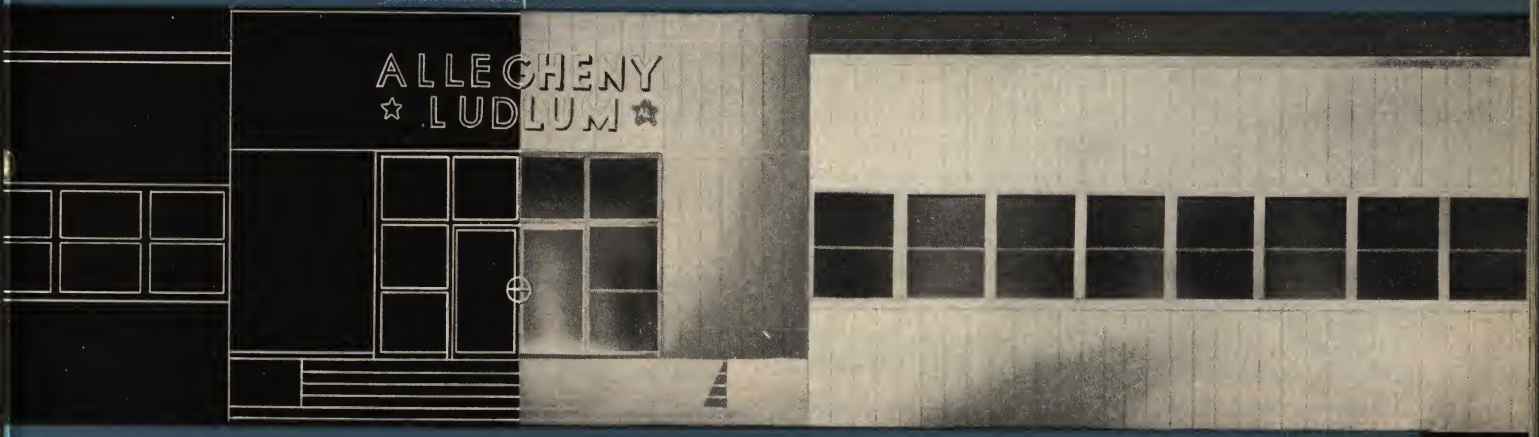
ALLEGHENY

STAINLESS STEELS FOR BUILDING

EXTERIOR WALLS

ENTRANCES · DOORS · WINDOWS

ROOFING · FLASHING · ROOF DRAINS



A I A FILE No. 15-H-1

stainless steels in architecture



First three buildings of Pittsburgh's famous "Gateway Center," employing stainless steel curtain wall construction.

Dating from its commercial inception in the late 1920's, architects were quick to see and utilize the structural possibilities of stainless steel.

Very strong and hard-surfaced, with a rich but neutral luster, stainless is a superior material for a host of important decorative and functional uses. The strength and beauty of stainless steel are lasting because they come not from any surface treatment, but from an alloy composition that resists rust and corrosion clear through. Further, stainless can be readily formed and fabricated, and it is easily cleaned—never requiring painting or repainting.

Allegheny Ludlum is proud to have been a pioneer manufacturer of a material which has been put to such beautiful and effective use. There are over 30 different chromium-nickel and straight chromium grades of Allegheny Stainless Steel. The types of special interest to architects are described below. Because of strategic reasons, the supply of some of these grades may be restricted from time to time, but thoroughly adequate alternate grades have been developed for practically every application.

types

Allegheny Stainless, Type 302: This is the basic "18-8" chromium-nickel grade. It can be formed and fabricated easily, and when used on exterior work, offers a high degree of resistance to atmospheric corrosion. Also to be seen on many interior jobs.

The physical and mechanical properties of Type 302 and the other grades listed here are set forth on page 3 in sufficient detail for general design purposes. The designations of the American Society for Testing Materials are sometimes made a part of architectural specifications. For plate, sheet and strip, ASTM specification A 167-44 Grade 2 is used for Type 302. The ASTM specification for bars is A 276-49 T, Type 302.

Allegheny Stainless, Type 301: A modification of the basic "18-8" analysis primarily designed for use where higher mechanical strength is required. Most widely used as CR strip in widths up to 23-15/16". Much used to make roof drainage products, offering great strength and light weight, long life and economy. Like Type 302 it has excellent resistance to corrosion from weather, and the two grades are frequently used interchangeably. ASTM designation: A 167-44, Grade 1.

Allegheny Stainless, Types 201 and 202: These types, containing manganese and less nickel are available for applications similar to those to which Types 301 and 302 are applied.

Allegheny Stainless, Type 316: Has extra corrosion resistance, specially indicated for marine uses, seacoast applications, etc. ASTM designation for Type 316 plate, sheet and strip is A 167-44 Grade 11; for bar, A 276-49 T, Type 316; for tubing, A 269-47 Grade TP 316.

Allegheny Stainless, Type 442: Excellent corrosion resistance, comparable in atmospheric exposure to 302, makes this grade the best straight chromium stainless steel for exterior work. Fabricates easily, but minor variation in fabrication techniques may be necessary as compared with the more commonly used 302.

Allegheny Stainless, Type 430: Corrosion resistance of this grade is not quite up to Type 442, but fabrication is similar. Type 430 is the principal straight chromium grade for interior work, and is also used for corrugated

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physical and mechanical properties

Stainless Type	301*	302*	316	442	430
Used for—	GENERAL PURPOSE	GENERAL PURPOSE	EXTRA CORROSION RESISTANCE	GENERAL PURPOSE	PRIMARILY INTERIORS, FORMED TRIM
Permanence	EXCELLENT	EXCELLENT	PREMIUM	EXCELLENT	VERY GOOD
Typical Properties (annealed)					
TENSILE STRENGTH, psi	100,000	80,000	75,000	80,000	60,000
Yield STRENGTH, psi	35,000	30,000	30,000	45,000	35,000
ROCKWELL HARDNESS (Max.)	B90	B90	B95	B95	B95
ELONGATION, per cent in 2"	50	50	40	20	20
MOD. OF ELASTICITY, psi	29×10^6	29×10^6	29×10^6	29×10^6	29×10^6
THERMAL EXPANSION COEF.	9.2×10^{-6}	9.2×10^{-6}	9.2×10^{-6}	5.6×10^{-6}	5.6×10^{-6}
Composition					
CHROMIUM, per cent	16 to 18	17 to 19	16 to 18	18 to 23	14 to 18
NICKEL, per cent	6 to 8	8 to 10	10 to 14	0.50 *max.*	0.50 *max.*
CARBON, per cent	0.15 *max.*	0.15 *max.*	0.1 *max.*	0.25 *max.*	0.12 *max.*
MOLYBDENUM, per cent	—	—	2 to 3	—	—

* See paragraph on preceding page regarding Types 201 and 202.

industrial roofing. During period of nickel scarcity, it has been used for roof drainage products and curtain wall panels. Type 442, however, offers better assurance against superficial staining. ASTM designation for Type 430 plate, sheet and strip is A 176-49, Grade 4; for bars, A 276-49 T, Type 430.

Allegheny Stainless, Types 303 and 430 F: Used in making many of the fasteners and other machined parts which should be specified for stainless construction. These types are the free-machining modifications of Types 302 and 430. Generally specified only as finished screws, bolts and nuts, etc.

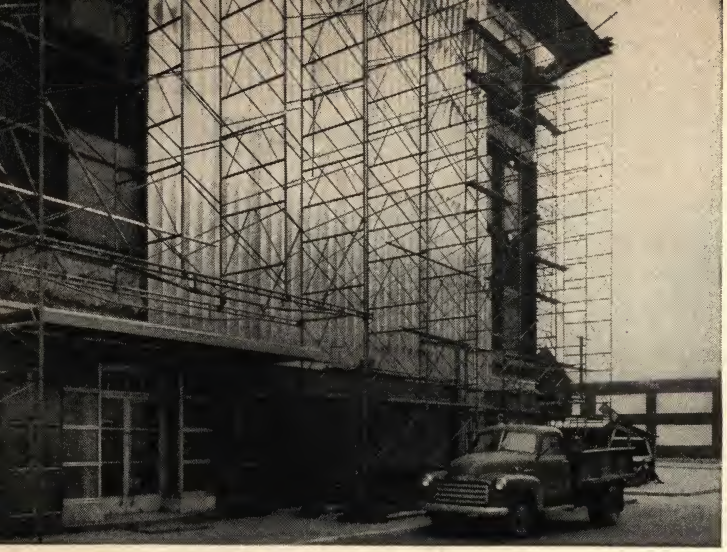


G.E. Office Building in Schenectady. Stainless curtain wall construction.

forms

By far the most widely used mill forms of Allegheny Stainless Steel in architecture are cold-rolled sheet and strip in relatively light gages, taking advantage of stainless steel's unique combination of strength and corrosion resistance. Brake-press, or roll-formed sheet and strip members are prominent in marquees, lobbies, store fronts and wall panels. Strip (under 24" wide) offers a price advantage in its size range over sheet, which is available up to 72" wide.

As adjuncts to components and structures formed from sheet and strip, hot rolled and cold finished bars are available in a wide range of sizes and shapes. Welded and seamless tubing are likewise offered in sizes to meet ordinary design needs. Plates (over 3/16" thick) are also available, although designs generally avoid such heavy thicknesses.



Stainless curtain walls,
applied over existing structure.

finishes

Allegheny Stainless Steel sheets are produced in 5 standard finishes applicable to architectural use:

No. 2D—Full-finished, and dull cold-rolled to give a non-reflective effect.

No. 2B—Full-finished, and bright cold-rolled. Somewhat brighter than 2D, but does not have the high luster of a polished finish. The most widely used finish for such purposes as exterior wall panels.

No. 4 —Polished. This is the most commonly used finish for installations which are close to the public eye, as in building lobbies, marquees, etc. It is bright, but not highly reflective, and fingermarks less than other finishes. It is not difficult to match in covering fabrication marks and blending welds.

No. 6 —Polished, and tampico brushed. This is a number 4 finish brushed with tampico fiber. The result is conservative, soft, with low reflectivity.

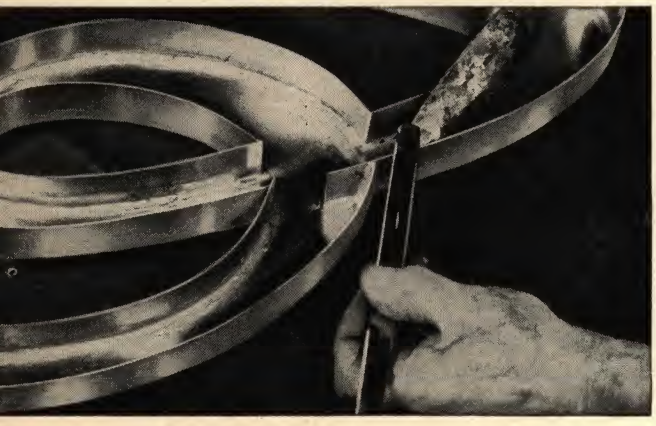
No. 7 —High luster polish, the highest normally furnished.

Cold rolled strip finishes are less standardized, and there is considerable difference between the appearance of the straight chromium and chromium-nickel grades. Finishes of varying degrees of brightness are available, as approved by the architect. Plates are offered in pickled or polished finishes.

In general, a similar or matching finish can be secured on other forms of stainless steel which may be used in a design, such as bars, tubing, castings or forgings. In the event that a polished or dull-finished smooth metal surface is not the effect you want, *textured* Allegheny Stainless Steel may offer a solution. This is stainless strip or sheet with an embossed, relief texture, with varying patterns produced by cold working between special rolls.

fabrication





Outside of custom-designed and built building components, there are many standard stainless fabrications which architects can include in their designs, such as the following. All Allegheny Ludlum sales offices can help you locate good sources.

finished units: *Curtain Wall Panels,* for exteriors, and *Doors, Windows,* Door and *Window-Frames,* also *Storm* and *Screen Doors. Kitchen Equipment*—standard cabinets, counters, refrigerators, shelves, sinks, stoves, etc. *Roof Drainage Equipment*—gutters, downspouts, miters, caps, hangers, etc.

accessories: *Hardware* of all description. *Letters and Numbers*—for signs and marquees, etc. *Screening*—for insects, decorative use, or safety. *Through Wall Flashing, Weatherstripping,* etc.

construction materials: *Roll Formed Sections*—for panel framing, store-front and glass-holding components, etc. *Perforated Stainless Steel*—in many patterns, for grilles, etc. *Panels*—stainless bonded to plywood, honey-comb, etc. for interiors or exteriors. *Textured Sheets and Strips*—either plain or bonded, and *Wall Tile*—smooth or textured. *Skylight and Sash Members. Expanded Stainless Steel*—similar to metal lath, for grilles and screens—and *Tie Wire. Wire Rope and Chain*—practically all sizes, for decoration or utility. *Anchors,* for masonry or brick walls. *Corrugated Stainless Roofing and Siding*—for industrial construction purposes. *Nails, Screws, Bolts and Nuts*—fasteners of all descriptions.

specifications

In handling stainless steel for architectural purposes, the specifications below are suggested as typical:

grade: Stainless steel shall be Allegheny Type ____, annealed, except where other types or tempers are specified.

finished samples: Finish shall conform to standard mill finish, as specified on drawing, except where a special finish is indicated. All non-standard finishes are to be submitted by fabricator for approval.

shop drawings: Shop drawings shall be submitted which will show in detail all work to be supplied. Drawings (full scale unless impractical) shall show thicknesses of metal, construction details, methods of joining, reinforcing, anchoring and supports. Drawings shall show methods for applying all screws and other fastenings. Finishes shall also be specified on the drawings if these are to be applied.

workmanship: Workmanship shall be in character with the high quality of the material being fabricated and installed. Welds shall be free from imperfections, and shall be finished and blended as closely as practicable to the parent metal. Joints shall be tight, and visible fasteners shall be blended as closely as practicable to the adjoining metal. All surfaces of stainless shall be kept clean and free from contamination by ordinary steel or iron.

fasteners: All fasteners shall be stainless steel of the correct grade, as recommended by the manufacturers of the fasteners.

fabrication: Wherever possible, all parts shall be formed, cut, drilled, tapped, welded, fitted or otherwise fabricated in the shop.

welding: In arc and gas welding, electrodes or filler rods shall be the correct type, as recommended by the electrode manufacturers. This also applies when stainless and carbon steels are joined. All welds shall be sound, and free from defects. Flux and welding oxides, and the discoloration they produce, must be removed by pickling or grinding since such oxides rust rapidly. Exposed weld beads shall be ground or polished to conform with adjacent areas.

soldering: Soldering shall be used only for filling or sealing joints (lockseamed, spot welded, riveted, etc.) and must not be depended upon for mechanical strength. The area to be soldered shall be cleaned and etched with a suitable flux, and the flux shall be restricted to this area. The soldering operation shall follow immediately. The minimum tin content of the solder shall be as specified, and the remainder shall be lead. Where holding tarnishing of the solder to a minimum is desirable, a solder of 75% tin and 25% lead is recommended; otherwise, 50% tin solder is usually adequate. Immediately after soldering, the surface shall be washed with a solution of washing soda, or other neutralizer, followed by a clear water rinse.

protection of less corrosion-resistant metals: Less corrosion-resistant materials shall be protected, as far as possible, from action of the elements. Joints between stainless steel and other metals shall be protected from the weather wherever practicable. Carbon steel shall be protected by at least two shop coats of approved bituminous paints. Painted parts should be thoroughly dry before assembling.

protection of the stainless steel surface: The use of paper, adhesive paper, or plastic film coating is recommended during fabrication, transportation and erection to protect against marring, stray paint, plaster, salts, acids, and staining from accidental contact with, or drip from, rusted carbon steel or other dirt. The protective coating shall be applied and removed in strict accordance with the instructions of the adhesive manufacturer.

cleaning: Upon instruction, the protective coating shall be removed and, if necessary, the exposed surfaces of the stainless steel shall be washed with water and detergent, or other safe cleaning agents. (*Note:* Allegheny Ludlum welcomes consultation on cleaning procedures.)



Stainless steel entrance, with stainless steel soffit, fascia and railings.



Windows on new 160,000-kw power plant, which employed stainless steel curtain wall construction, have more than 14,000 square feet of sash framed and trimmed with stainless steel.



Stainless steel roofing sheets, here fastened to the roof beams by means of studs, spaced at every third corrugation. Top of each stud was hit with hammer.

advantages

The advantages of stainless steel are readily apparent. For one thing, it is beautiful and it blends harmoniously with other materials. For certain decorative and functional purposes, no other material is more suitable. Also, it is well-nigh everlasting in service, even in industrial atmospheres containing large amounts of smoke, furnace fumes, mill dirt, etc.

Its resistance to corrosion is outstanding. This fact, plus the fact that stainless is so easy to clean and keep clean, never requiring painting or repainting, make it a highly economical material—probably the least expensive of all in the long run.

long life: The lasting qualities of Allegheny Stainless have been rigorously tested in the oil refining, chemical, dairy, textile, meat-packing, canning and other industries. They have subjected stainless steel equipment to corrosive and mechanical abuse far more destructive than that normally exerted by the forces of nature, or by the gases and smoke around mill buildings, power stations, etc. These industries have checked the performance of stainless steel and the other metals architects use, and they have found stainless by far the most enduring.

harmonious blending: Allegheny Stainless Steel does more than add its own beauty to a design—it brings out the beauty of other materials. Its quiet luster points up the intrinsic color values of other surfaces, such as stone, wood, porcelain enamel or paint. It blends perfectly with glass, or glass brick, suggesting the same clean quality. In spandrels, mullions, or curtain walls, stainless brings out the grace and lines of good construction.

lasting corrosion resistance: Stainless steel does not deteriorate with age and exposure, as do most other metals, because stainless has large amounts of chromium in it—alloyed in the melt with the iron. It does not rust like ordinary iron and steel because adherent oxides of chromium form spontaneously on exposed surfaces to establish an invisible armor the instant the metal is exposed to the air.

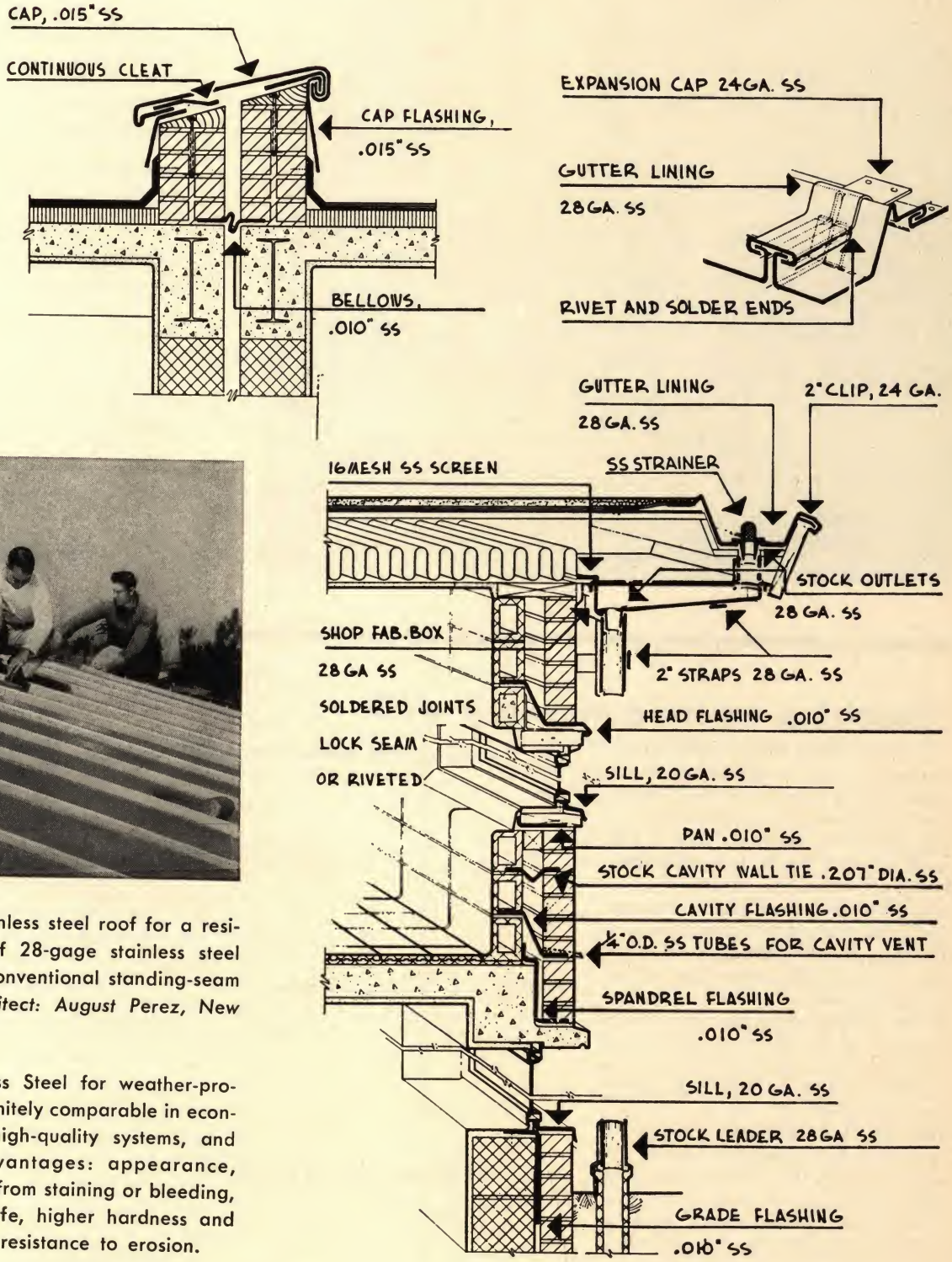
economical: Stainless is easy to clean. This fact does more than help insure a good appearance—it means cash-in-hand savings for those who pay for maintenance. Reduction of cleaning labor and materials, which have become increasingly more expensive, is a very real economy.



Above: this stainless steel roof for a residence is made of 28-gage stainless steel strip, employing conventional standing-seam construction. *Architect: August Perez, New Orleans.*

Allegheny Stainless Steel for weather-protection uses is definitely comparable in economy with other high-quality systems, and offers many advantages: appearance, strength, freedom from staining or bleeding, indefinitely long life, higher hardness and consequent better resistance to erosion.

At right: details of typical stainless steel roof and drainage construction, showing methods of handling stainless cap, gutter lining, sill, pan, flashing at various points, etc.





exterior walls

The use of stainless steel for exterior walls of steel-frame buildings is receiving considerable attention in the architectural and construction industry. A wide latitude of choice is available, ranging from corrugated sheeting, through various forms of non-structural facing, to modern curtain wall panels of standard or highly individualistic design.

The notes on shapes and textures, at right, and on typical wall systems on the following two pages, typify the great variety that is possible with this type of construction. Utilization of light, thin walls—in which metals are combined with modern insulating materials as a replacement for traditional masonry—is a sound and logical idea. The advantages are obvious. Among them are: savings in weight, space, erection time, and maintenance; also definite gains in appearance, insulation, all-weather construction, fire safeness, water tightness, and durability.

sheathing existing masonry walls

Stainless steel can be used for appearance and weather resistance, along with a back-up of low-cost masonry of permissible code thickness.

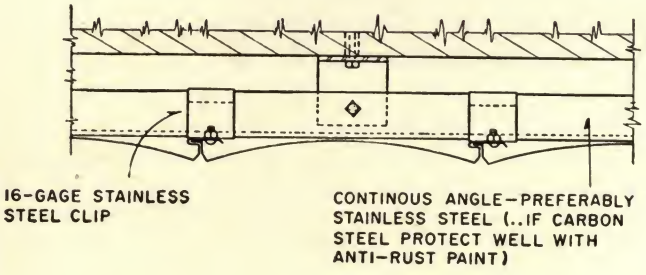
wood-furring method: This is suitable for store fronts, low commercial buildings, office and apartment buildings. Stainless steel facing may be nailed or screwed to the wood furring. This type of construction is particularly applicable to the renovation of existing structures.

metal-anchor method: This should be used in the better class of steel buildings to insure permanence. Where corrosion is a factor, stainless anchors are the answer.

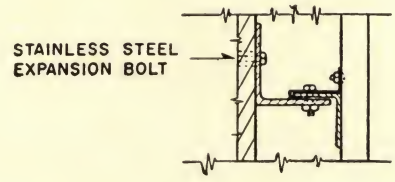
concrete-wall method: Where the upgrading of a concrete wall is desired, stainless steel can be placed inside the wood forms and will provide a permanent, weather-proof finish.

corrugated sheeting: For upgrading mill buildings, etc., to secure long life with little maintenance, corrugated stainless sheeting is used for both siding and roofing, fastened directly to the supporting members like ordinary galvanized sheeting, with studs or stainless fasteners.

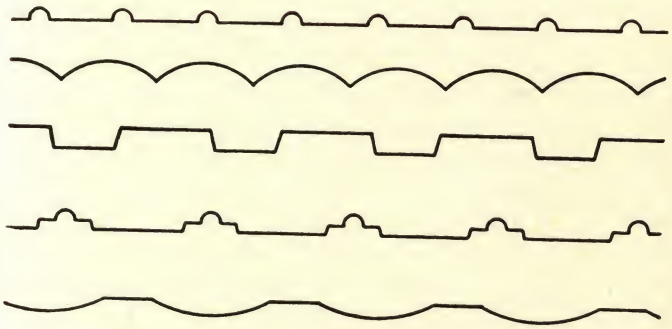
horizontal cross-section:



vertical cross-section:



shapes



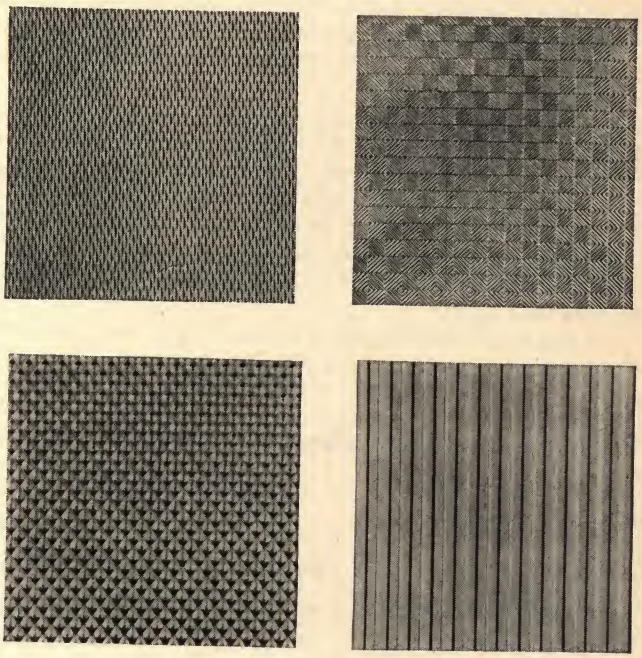
▲

ROLL OR BRAKE FORMED PANELS—either side of such forms as shown above may be used. Fluted panels of almost any design may be used. If the job is of sufficient size to warrant making special dies, specially designed stamped panels may be used.

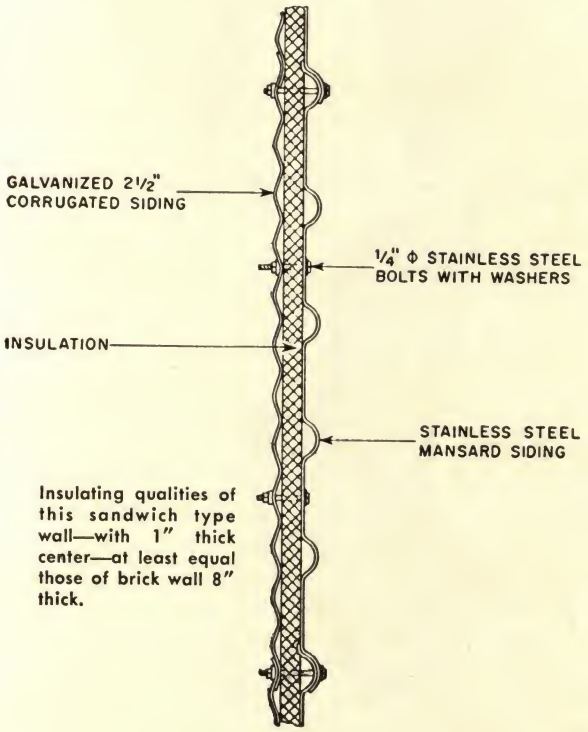
▶

TEXTURED PANELS—textural treatments can be used so long as they do not interfere with forming the stainless panels. They add variety in appearance and offer advantages in masking scratches or handling marks.

textures

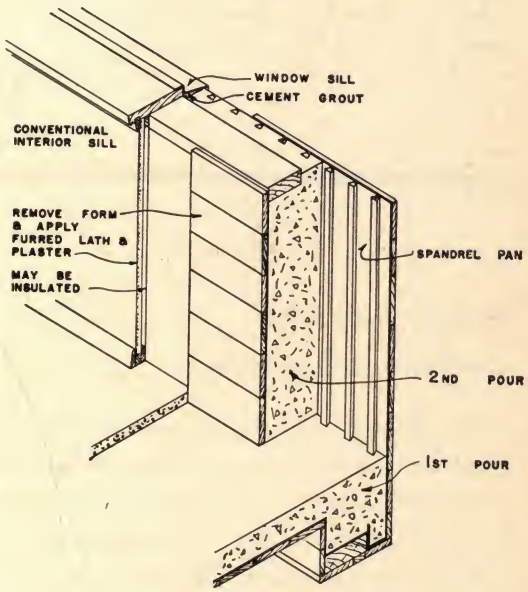


sandwich siding construction:



Insulating qualities of this sandwich type wall—with 1" thick center—at least equal those of brick wall 8" thick.

poured concrete wall with stainless sheathing:



view at floor ▲

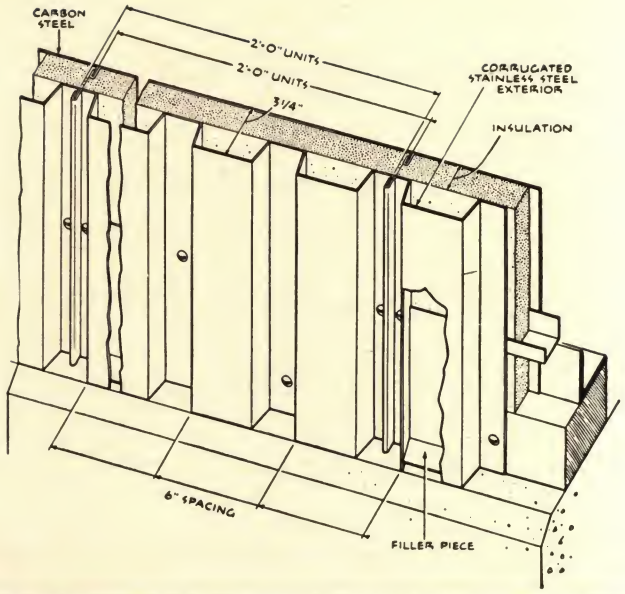
prefabricated panel

with integral non-rigid insulation

These stainless steel face panels are designed to take the wind load independently—a duty in which the high strength and high elastic modulus of stainless are of considerable assistance.

The back-up is assumed to furnish all of the required fire resistance although the face, in fact, furnishes added fire resistance to the wall. The face sheet can be used either as shown at right (with a back-up of factory or field-applied insulation plus an interior liner sheet) or as shown on the facing page, with masonry. Where code requires an interior masonry wall, the insulation and liner sheet may be omitted.

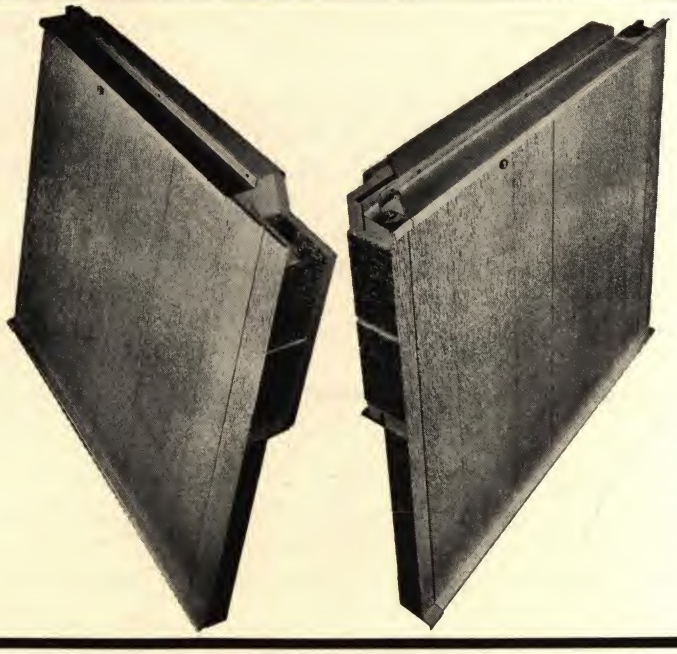
This type of construction is widely used for plant office buildings, power houses and similar structures.



reinforcing-type stainless steel facing

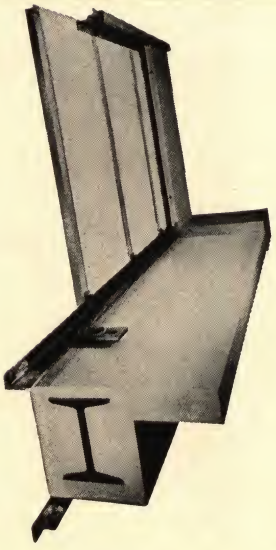
The spandrel-type unit shown on the facing page is intended primarily for use between building piers. The assembled panels, if desired, may incorporate windows with span from floor to floor.

The back-up may be that required for a traditional masonry wall, or, if the codes have been modernized, the stainless steel spandrel may be backed with less than the normal masonry thickness or with other materials. The illustration at the right shows two cutaway views of the construction of a typical panel, which consists of textured stainless steel pans, cast insulation, and inner wall. For pictorial clarity, a model was used.



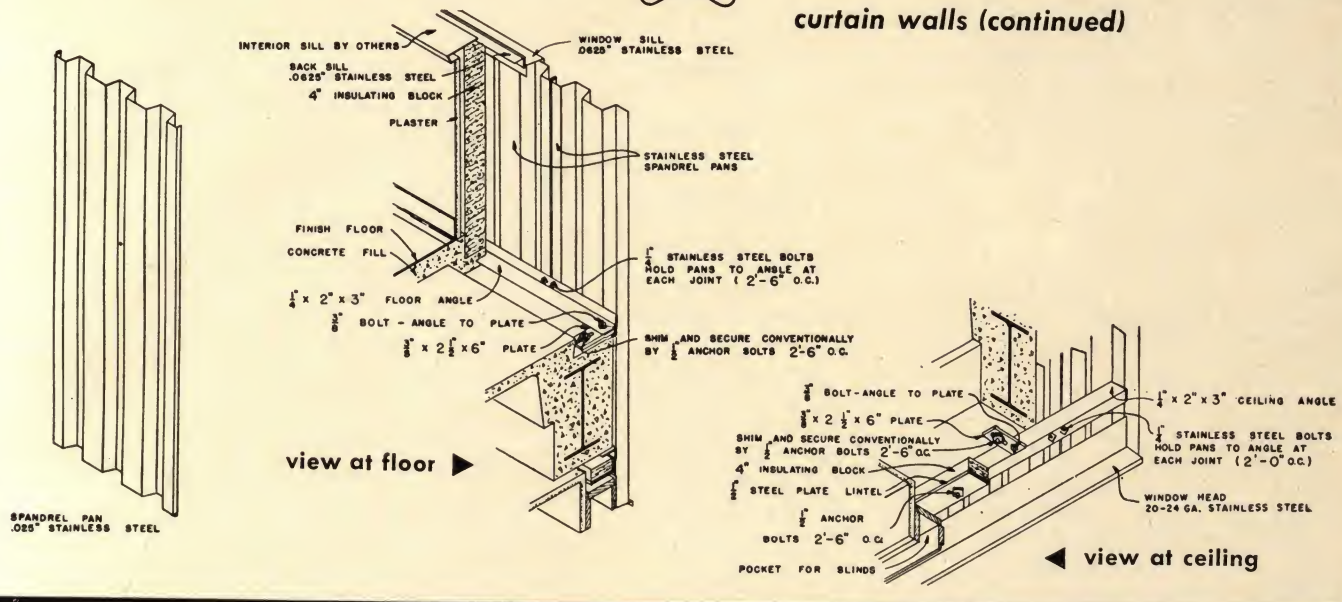
panel wall with rigid type insulation

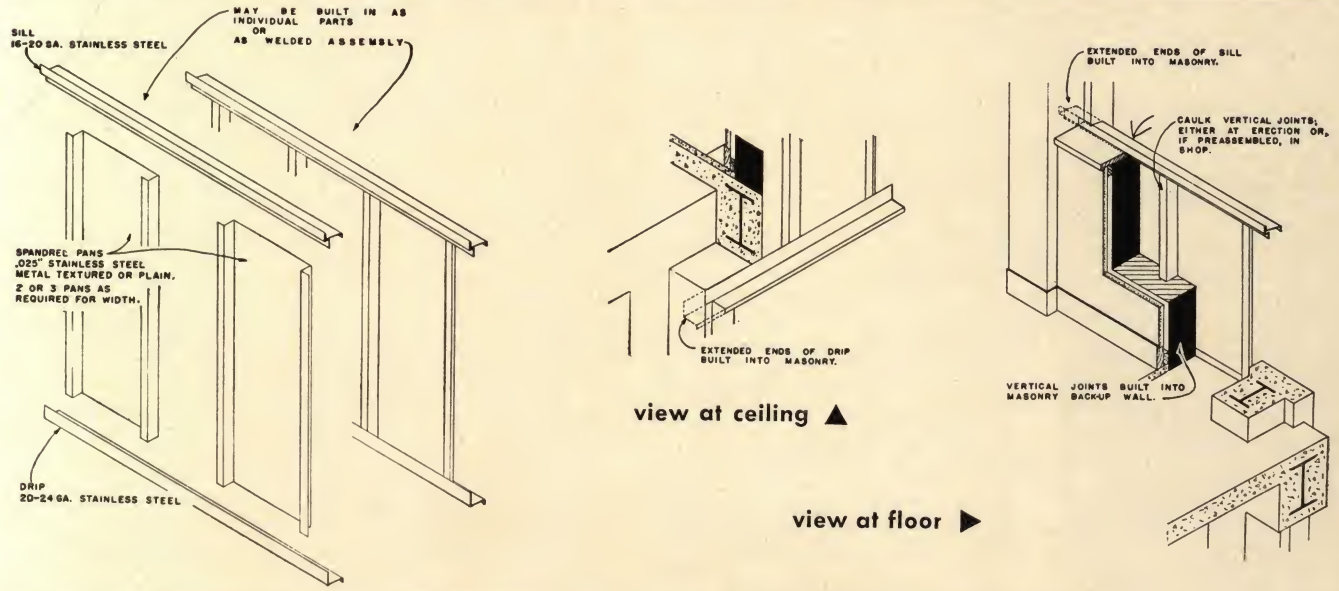
A rigid type insulation, combined with a metal-pan design and used with interior plaster finish, indicates economies in construction and should give fire-resistant ratings of from two to four hours—depending on the thickness of plaster, method of attaching furring, and protection used back of pans at joints. Meets wind test also.

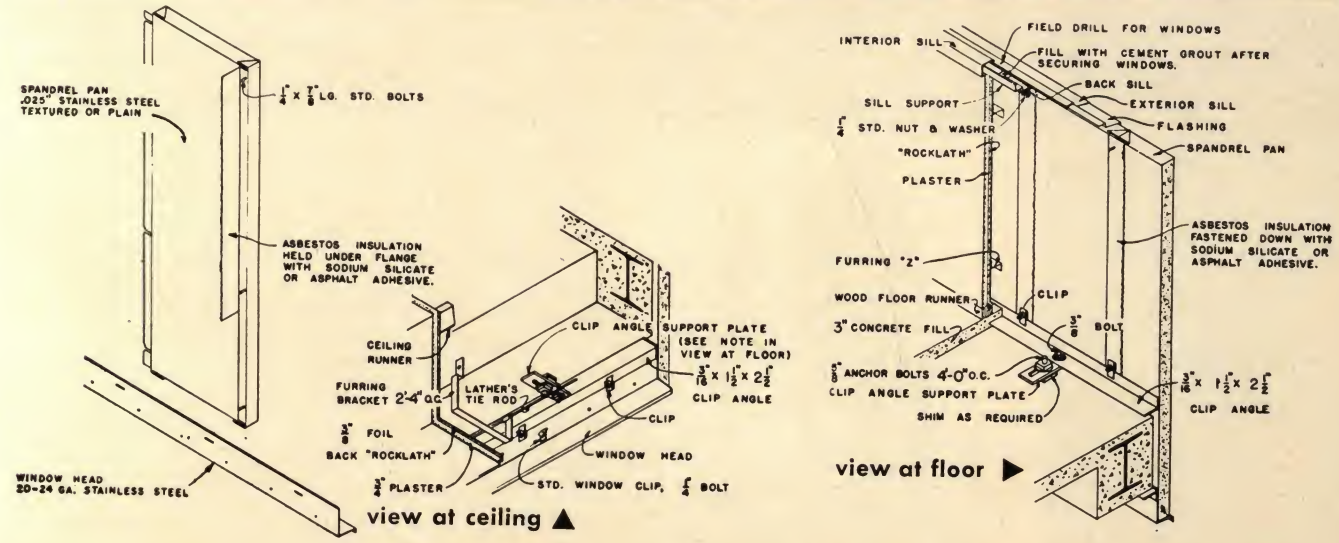


At Left: back view of partially assembled model. Note the simulated plastic wall and ceiling.

curtain walls (continued)







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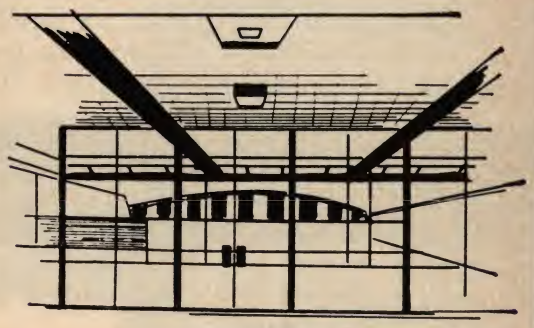
Stainless steel-sheathed Socony Mobil Building at Lexington Avenue and 42nd Street, New York City

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ARMCO STEELS
FOR ARCHITECTURE



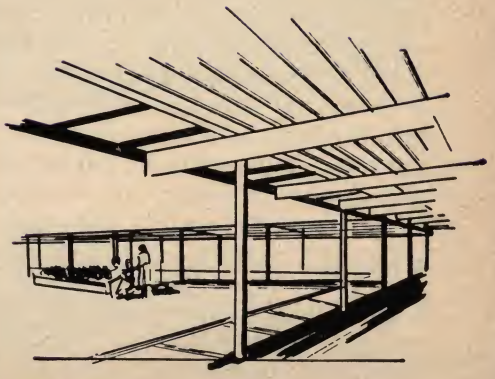
New steels are born at Armco

Stainless Steel
Enameling Iron
ALUMINIZED STEEL
ZINCGRIP PAINTGRIP

ARMCO®

Special-purpose steels that give you . . .

Design Freedom
Economy
Beauty
Durability
Low Maintenance



Armco Stainless Steel

Combines beauty, durability, and strength at low cost

More than a quarter-century of wide use has demonstrated stainless steel's utility as a medium for distinguished architectural expression. In contemporary architecture, stainless steel's attractive appearance, high strength and excellent corrosion resistance offer even greater opportunities.

Beauty Plus Utility

Armco Stainless Steel is available in a wide range of attractive finishes ranging from a soft, rich luster to a bright polish. You can achieve harmonious blending or effective contrast with the assurance that stainless will retain its handsome appearance. Stainless steel has no plated or chemically treated surface to deteriorate or wear off. Its high strength and corrosion resistance mean that durable beauty can be added to structural elements and building components such as mullions, windows, framing, fasteners and curtain walls.

Economy

Stainless means economy. Many curtain walls have recently been bid in stainless as low as 10% over other metals. Even though initial costs may be somewhat higher, stainless costs less in the long run because of its long life and low upkeep. Stainless steel's enduring beauty also helps maintain the value of any building.

Armco Service

Armco Stainless Steel is available in the form, finish, thickness and size needed for your designs, and Armco's long experience with stainless is available to you.

Armco Enameling Iron

For porcelain enamel curtain walls of proved durability and color fastness

Armco Enameling Iron, the first sheet metal developed especially for porcelain enameling, offers you a building material proved by long use in architecture. Modern curtain walls, porcelain enamel on Armco Enameling Iron, enable you to make full use of color and form in your designs.

Unlimited Color

Porcelain enamel gives you the choice of an infinite range of colors. And every color, from brilliant hues to soft harmonious tones, is durable, non-fading. In addition, you can specify different finishes to emphasize or subdue color effects.

Design Freedom

Besides color, porcelain enamel on Armco Enameling Iron offers other advantages. Panels are available in a wide range of sizes, thicknesses and designs, with or without insulation. The excellent fabricating properties of Armco Enameling Iron mean you can specify formed or pattern-textured panels to meet your needs.

Low-Maintenance Durability

Successful use for many years is your assurance that porcelain enamel on Armco Enameling Iron will preserve the original beauty of your buildings and keep maintenance costs low for your clients. Fused to this special base metal, the glass-like surface of porcelain enamel is rain-cleaned, lasts a lifetime.

Armco ALUMINIZED STEEL Type 2

Offers corrosion-resistant properties of aluminum plus the strength of steel

Armco ALUMINIZED STEEL Type 2 is sheet steel hot-dip coated with aluminum by a special process. This unique, low-cost building material combines the atmospheric corrosion-resistant properties of aluminum with the structural strength and rigidity of steel. Twenty-year exposure tests in an industrial atmosphere show that the aluminum coating on this special steel lasts at least three times longer than an unpainted zinc coating on commercial galvanized steel sheets.

Strength and Heat Reflectivity

Economical durability combined with the strength of steel makes ALUMINIZED STEEL Type 2 ideal for architectural applications. It resists fire damage and the attractive matte surface of this 2-in-1 metal reflects up to 80% of incident radiant heat. Buildings are cooler in summer and easier to heat in winter.

Economical

Structural sections of Armco ALUMINIZED STEEL Type 2 cost less than identical sections of equal-thickness aluminum. Additional savings are possible because the greater strength and rigidity of steel often permits the use of lighter gages.

Low maintenance costs, long life and elimination of painting are other advantages of ALUMINIZED STEEL that mean savings to your clients.

Wide Application

Armco ALUMINIZED STEEL Type 2 is being specified for a wide variety of architectural applications such as rolling doors, roof deck, siding, roofing, ventilators, curtain walls, lighting fixtures and other outdoor units.

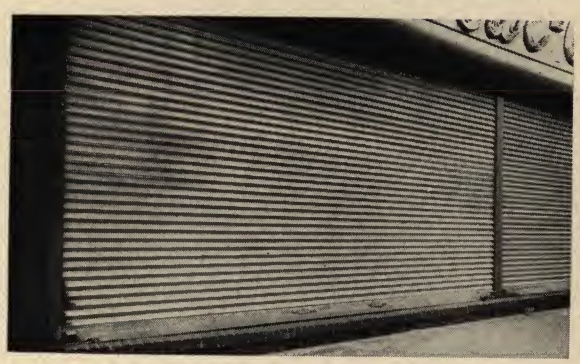









VORYS





Armco ZINCGRIP PAINTGRIP Steel



Two-year exposure test of painted panels shows how ZINCGRIP PAINTGRIP, compared to plain galvanized steel, prevents peeling of paint.

A special hot-dip zinc-coated steel that preserves paint

Armco ZINCGRIP® PAINTGRIP® Steel provides the corrosion- and rust-protection of a hot-dip zinc coating, plus a special mill-applied paint-holding surface. It requires no on-the-job surface preparation before painting, and preserves paint longer.

Zinc Coating Won't Flake

Parts such as roof drainage, interior faces of curtain wall panels and partitions have assured protection against rust when they are made of ZINCGRIP PAINTGRIP. That's because the special zinc coating doesn't flake or peel during fabrication. This means there are no bare spots to rust prematurely.

Paint-Holding Surface

To the full weight zinc coating on ZINCGRIP PAINTGRIP, a special surface treatment provides a paint-holding film. This not only eliminates the need for any further surface treatment prior to painting but insulates paint from the drying action of zinc.

Get Complete Information on Armco Steels for Architecture

Just mail the attached postage-free card or call the nearest Armco sales office. Additional information on each of these special-purpose Armco Steels and their use in architectural applications is available to you.

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REPUBLIC SHEETS



architectural applications of Stainless Steel...

REPUBLIC STEEL

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REPUBLIC STAINLESS STEELS

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What is Republic Enduro® Stainless Steel?



ENDURO is the trade name given to the family of stainless steels produced by Republic Steel Corporation, the world's largest maker of alloy and stainless steels. There are more than 35 standard types of stainless. Each type fills a special requirement for special properties or combination of properties such as corrosion, strength or heat resistance, and machining or welding. However, only a few of these types are commonly used in architecture.

Essentially, stainless is an alloy of iron with chromium; or iron with chromium and nickel. Chromium in the amount of 11½% or more makes it stainless. Small amounts of alloying elements, such as titanium, columbiun or molybdenum, may be added to attain better heat-resistance, corrosion-resistance or welding stability.

No other metal employed by the building industry has such a remarkable ability to resist corrosion and oxidation. Properly selected and applied, it is rust-proof and will not tarnish when exposed to the atmosphere.

Stainless steel is easily cleaned and kept sanitary. Stronger than ordinary steel, it is well suited for applications where high strength and high corrosion-resistance are necessary. Stainless offers high resistance to scaling (oxidation) at high temperatures. It can be readily fabricated with standard metal fabricating equipment and processes.

specify REPUBLIC Stainless Steel because . . .



IT IS CORROSION RESISTANT

Stainless resists corrosive industrial atmosphere, grime, soot, and attack by most acids and chemicals. It requires no special surface treatment.



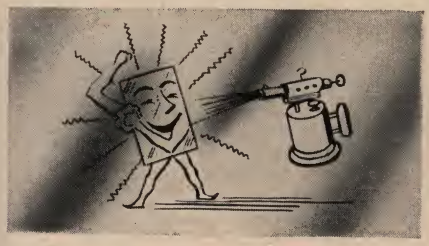
IT BLENDS WELL

The neutral, silvery color of stainless is ideal for blending with other building materials such as porcelain enamel, masonry, wood and glass.



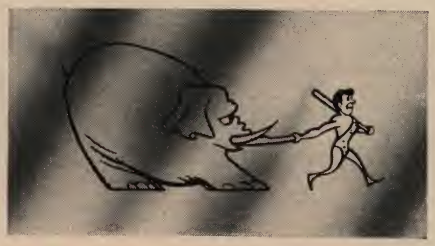
IT IS EASY TO FABRICATE

Stainless can be readily fabricated with standard shop equipment and only slightly altered shop techniques. Thousands of sheet metal shops have had excellent results in the fabrication of this metal.



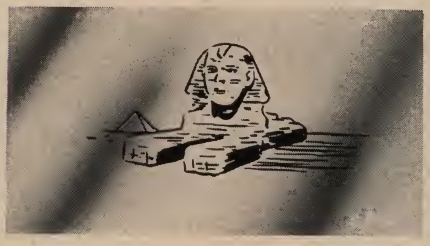
IT IS HEAT RESISTANT

Stainless retains its high strength even at elevated temperatures. This makes it an ideal material for combustion chambers and processing equipment involving high temperatures.



IT IS STRONG

Stainless is a high-strength alloy which often permits the use of lighter sections. This high strength-weight ratio is particularly advantageous for equipment where weight is an important factor in design such as in transportation equipment.



IT IS PERMANENT

When stainless is specified, worries end, because it lasts, and lasts. Hundreds of installations made 20 to 30 years ago are as good as new today!



IT IS ATTRACTIVE

The natural, lustrous appearance of stainless imparts a quality of beauty, dignity and richness to buildings and homes on which it is used and it stays bright for a lifetime.



IT IS EASY TO CLEAN

The tough, hard, smooth surface prevents grime and dirt from gaining a foothold. A wipedown with detergent or soap and water is usually all that's required to leave a bright-as-new appearance.

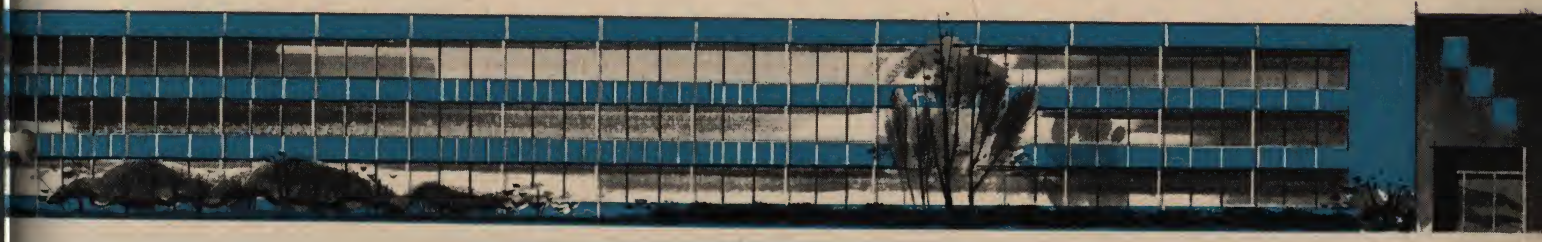


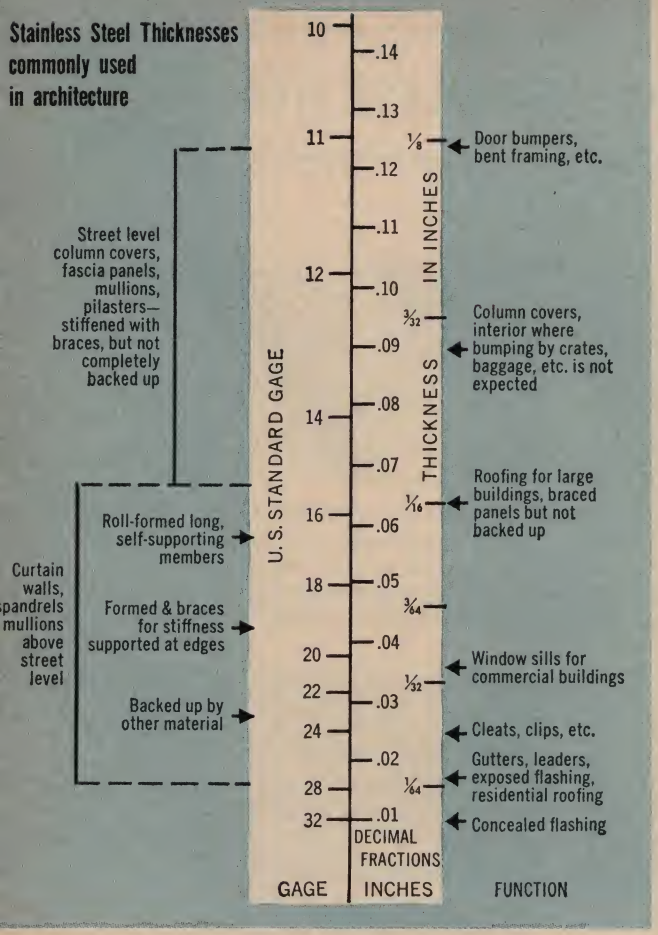
IT IS THRIFTY

Long-range planners look beyond initial costs. When repairs and upkeep are taken into account, stainless often proves to be the least expensive material because maintenance costs are negligible.

these features will appeal to your clients—

Whether your next job requires the functional use of stainless steel, its decorative appeal, or a combination of both, your clients will readily appreciate the benefits from its use. No material now available to the building industry has as many desirable properties as does stainless steel. Few materials have as much sales appeal.





how to specify stainless steels . . .

When specifying stainless steel, the architect should consider: conditions of service and design requirements such as types of stainless gage (this page), form (page 16) and finishes (page 15). To insure that the proper stainless is specified it is recommended that the architect take advantage of the specialized knowledge and assistance of Republic's metallurgists.

Specifications for finishes will depend upon whether reflectivity

Several types of stainless steel now used

These are Types 301, 302, 316, 201, 202 and 430. Types 303 and 430F are used for bolts, nuts, screws and other hardware. Type 302 contains approximately 18% chromium and 8% nickel and is the all-purpose type known as 18-8. This alloy has high all-around corrosion resistance, especially under atmospheric exposure, making it particularly well suited for exterior applications.

Type 301 is a variation of Type 302, having approximately 17% chromium and 7% nickel, and is slightly less corrosion resistant than Type 302. Type 301 can be cold rolled to high tensile strengths for special applications. Type 316 offers more corrosion resistance than Types 301 and 302 because of the addition of

ARCHITECTURAL STAINLESS STEEL TYPES

	Comparative Architectural Metals		General Purpose			High Strength or Special Purpose		Maximum Corrosion Resistance	Free Machining	
	Galvanized Steel C-1010	Aluminum 3003-H14	Type 302	Type 202	Type 430	Type 301	Type 201	Type 316	Type 303	Type 430F
PRINCIPAL ALLOYING ELEMENTS (Per Cent)										
Carbon	0.15 Max.	—	0.15 Max.	0.15 Max.	0.12 Max.	0.15 Max.	0.15 Max.	0.08 Max.	0.015 Max.	0.12 Max.
Chromium	—	—	17.0-19.0	17.0-19.0	14.0-18.0	16.00-18.00	16.0-18.0	16.00-18.00	17.00-19.00	14.00-18.00
Nickel	—	—	8.0-10.0	4.0- 6.0	—	6.00- 8.00	3.5- 5.5	10.00-14.00	8.00-10.00	—
Other	—	1.0-1.5 Mn	—	7.5-10.0 Mn	—	—	5.5- 7.5 Mn	2.00- 3.00 Mo	.015 Min. S or Se	0.15 Min. S or Se
Balance	Fe	Ae	Fe	Fe	Fe	Fe	Fe	Fe	Fe	Fe
TYPICAL MECHANICAL PROPERTIES (Annealed)										
Yield Strength (psi)	30,000	20,000	40,000	55,000	45,000	(Note) 40,000	(Note) 55,000	40,000	35,000	55,000
Tensile Strength (psi)	58,000	22,000	90,000	105,000	75,000	110,000	115,000	90,000	90,000	80,000
Elongation in 2"	30	8	50%	55%	25%	60%	55%	50%	50%	25%
Hardness	RB 65	R-15T 60	RB 85	RB 90	RB 80	RB 85	RB 90	RB 85	160 BHN	170 BHN
OTHER PROPERTIES (Annealed)										
Modulus of Elasticity (Psi in Tension)	29 x 10^6	10 x 10^6	28 x 10^6	28 x 10^6	29 x 10^6	28 x 10^6	28 x 10^6	28 x 10^6	28 x 10^6	29 x 10^6
Density (lb./cu. in.)	0.28	0.10	0.29	0.28	0.28	0.29	0.28	0.29	0.29	0.28
Mean Coefficient Expansion per degree F (32-212° F)	6.7 x 10^{-6}	12.7 x 10^{-6}	9.6 x 10^{-6}	10.2 x 10^{-6}	5.8 x 10^{-6}	9.4 x 10^{-6}	8.8 x 10^{-6}	8.9 x 10^{-6}	9.6 x 10^{-6}	5.8 x 10^{-6}
Thermal Conductivity (BTU/hr./sq. ft./degree F/ft.)	34	92	9.4	9.4	15.1	9.4	9.4	9.4	9.4	15.1
Melting Range (degree F)	2765-2775	1190-1210	2550-2590	2575-2625	2600-2750	2550-2590	2575-2625	2500-2550	2550-2590	2600-2750
Scaling Temp. Intermittent Service (degree F)	1200	—	1600	1500	1500	1600	1500	1600	1500	1500

Note—May be cold worked to much higher mechanical strength properties for special applications. For example, Types 301 and 201 sheet and strip may be cold worked to minimum yield strengths of 75,000 psi (¼ Hard), 110,000 psi (½ Hard), 135,000 psi (¾ Hard) and 140,000 psi (Full Hard).

or non-reflectivity is desired and whether the stainless should match or contrast with other materials. When a bright finish is required, a 2-B or No. 4 finish polished sheet is generally specified; for a softer, or satin finish, No. 6 finish is frequently used. For extremely high reflectivity, a No. 8 mirror or No. 7 finish is sometimes used. No. 2-B and No. 4 mill-finish sheets in a wide variety of gages and sizes are ordinarily stocked by warehouses. Other finishes usually must be obtained from the mill. In many cases, fabricators start with a No. 2-B mill-finish and then polish to any desired finish after fabrication is complete. After forming, stainless should normally be cleaned with a dilute, warm nitric acid solution to remove iron particles, which might be picked up from rolls, dies or tools.

for architectural purposes . . .

2-3% molybdenum.

The chromium-nickel-manganese Types 201 and 202 stainless steel contain 6-8% manganese to substitute for some of the nickel contained in the higher-nickel-content 300 Series to achieve similar mechanical and corrosion-resistant properties.

Type 430 is a straight-chromium grade of stainless and contains 14-18% chromium with no nickel. This type has somewhat lower corrosion resistance than the 300 or 200 Series. While it is sufficiently resistant for some exterior applications, it is principally employed for interior use. It does not have the ductility of Type 302 or 202. Where severe forming is required, Type 302 or 202 should be used. Welded joints in Type 430 have a tendency toward embrittlement.

Types 303 and 430F are suitable for bolting and other hardware where machinability is of prime importance.*

The selection of the proper type and finish of stainless for each application is highly important if long range economy is to be realized. Each prospective application requires special consideration and a Republic representative should be consulted. Metallurgical assistance is strongly recommended.

**Type 303 is more corrosion-resistant than type 430F.*

Stainless resists corrosion . . .

The resistance of stainless steels to some of the more common foods, acids and chemicals is shown in the table at right. This is a partial table and only three types of stainless are listed. More complete data is available upon request.

Symbols represent the approximate relative corrosion-resistance as follows: I—Fully Resistant; II—Satisfactorily Resistant; III—Fairly Resistant; IV—Slightly Resistant; V—Not Resistant.

Because conditions of service cannot always be duplicated in the laboratory, it is advisable wherever possible, to subject samples to actual operating conditions for the most accurate prediction of service life.

Substance and Conditions	Temp. °F.	Type 316	Type 302	Type 430
Alcohol Ethyl	70	I	I	I
	Boiling	I	I	I
Alcohol Methyl	70	I	I	I
	150	III	*III	*III
Ammonia All Concentrations	70	I	I	I
Beer		I	I	—
Benzene	70	I	I	I
Benzol	Hot	I	I	I
Benzoic Acid	70	I	I	I
Blood (Meat Juices)	Cold	I	*I	*I
Borax 5%	Hot	I	I	I
Boracic Acid 5%	Hot or Cold	I	I	I
Carbonated Water	Hot or Cold	I	I	I
Carbon Tetrachloride Pure	70	I	I	I
Chlorinated Water Saturated	70	**II	**III	IV
Developing Solutions	70	I	I	I
Epsom Salts	Hot or Cold	I	I	I
Ether	70	I	I	I
Fruit Juices	70	I	I	I
Concentrated Citric	70	II	V	V

Substance and Conditions	Temp. °F.	Type 316	Type 302	Type 430
Hydrogen Peroxide	70	I	†I	†I
Ink	70	I	†I	—
Iodine	70	IV	V	V
Kerosene	70	I	I	I
Lard	70	I	I	I
Linseed Oil	70	I	I	I
Mayonnaise	70	I	*I	***
Naphtha	70	I	I	I
Nitric Acid 20% Solution	70	I	I	I
Concentrated	70	I	I	I
Oils, Vegetable, Mineral	Hot or Cold	I	†I	†I
Paraffine	Hot or Cold	I	I	I
Sea Water		I	*I	*III
Sewage		†I	†I	***
Sulphuric Acid 5%	Boiling	III	V	V
Concentrated	70	I	I	I
Tannic Acid	70	I	I	I
Varnish	70	I	I	I
Vegetable Juices		I	I	***
Vinegar	Hot	I	I	***

*Subject to pitting at air line or when allowed to dry.
**Not recommended for standing baths.
***Consult Republic metallurgists.
†May attack when sulphuric acid is present.

atmospheric corrosion

Stainless steel offers more economical protection against most types of atmospheric corrosion than other commercially available metals.

Resistance of stainless steel to atmospheric corrosion depends on an invisible oxide film which is formed on the metal when exposed to air. Accumulation of dirt or other substances should be avoided so that air is not excluded.

Architectural components for atmospheric environments should be designed so that moisture or dirt cannot collect. Rounded corners and smooth contours should be used to prevent the accumulation of liquids or solid matter. Butt or flush-welded joints are preferred over lap welded joints to eliminate crevices where foreign materials may lodge.

Nickel-bearing stainless steels, such as Types 302 and

301 or 202 and 201, provide satisfactory corrosion resistance for most exterior applications. For most interior decorative applications, Type 430 gives adequate service. Type 316 is frequently specified in marine atmospheres for added corrosion resistance to salty atmosphere.

Stainless steels do not depend on treated surface protection or coatings to provide adequate corrosion resistance. Some non-ferrous metals are commonly anodized or lacquered to give satisfactory service.

Such extra surface protection is not permanent. To maintain the bright appearance of these non-ferrous metals, considerable maintenance and cleaning are required.

Stainless is a solid metal throughout. It is often the most economical metal to specify, especially when maintenance costs are considered because it does not require extra surface protection.

Atmospheric corrosion varies considerably due to local conditions such as excessive moisture, salty air, heat, or chemically laden atmospheres. In cases of doubt, we suggest that our metallurgists be consulted before a final decision is made.

Stainless Steels have many architectural applications

There are MANY architectural applications for stainless—In addition to its outstanding corrosion resistance, an important advantage of stainless steel is the fact that it blends with other materials. Its gleaming, lustrous surface blends well with such materials as glass, porcelain enamel, plastics, non-ferrous metals, wood, brick, marble, stone and concrete. The following list includes some of the ever-expanding architectural applications of stainless steel—both interior and exterior.

Air conditioning ducts, dryers, outlets
Air conditioning units, washers, water cooling tanks
Anchors and anchor fastenings
Athletic equipment
Autoclaves
Awning boxes, hardware, piping
Awnings
Backbars
Balconies
Balustrades
Bar and bar fixtures
Barbecue equipment
Baseboards
Basins
Bathtubs
Beacons
Billboards
Bins
Boiler and accessories
Booths and seats
Booths, information
Bulletin boards
Cabinets
Canopies
Cavity wall ties
Ceilings
Checkers' stations
Chimney liners
Church crosses
Chutes
Clock faces and hands
Coffee urns and stands
Column coverings
Columns
Conductor pipes
Controls
Conveyors
Coolers, bottle
Copings
Corner guards
Cornerstone record containers
Cornices
Counter fronts, tops
Curtain wall panel
Decks
Deposit chutes
Desks and form racks
Directories
Dishwashers
Dispensers, paper, towel
Display cases, shelves
Domes
Door frames, handles, hardware
Doors, garage, hollow, revolving, screen and storm, swinging
Downspouts
Drainboards
Drinking fountains
"Drive In" service facilities
Dryers
Ducts
Dumbwaiters
Dust collectors
Elevator cab controls and dials, cab doors, cab linings
Elevator control boards and dials
Elevator door frames, doors
Escalators
Examining and operating tables
Exhaust systems
Expansion joints
Facades
Facia
Facings
Fans
Fences
Files
Filters
Fireplace accessories
Fireplaces
Flagpoles
Flashing, cap, through wall
Floor treads
Flues
Flower boxes
Folding gates
Food warmers
Foot rails
Furnace combustion chamber linings, covers
Gates
Gratings
Gravel stops
Grilles
Gutters
Guy wires
Handles
Handrails
Hangers
Hatracks
Hips
Hoods
Hydrotherapy tanks
Ice guards
Incinerators
Insect screens
Instruments
Kitchen equipment
Ladders and anchors
Lamp posts
Laundry equipment
Ledges
Letters
Lighting fixtures
Lightning arrestors
Lockers
Locks
Louvers
Mail boxes
Mail chutes
Marquees and hangers
Masts
Mirror frames
Mouldings
Mullions
Murals
Newels
News stands
Numerals
Ovens
Oxygen cabinets
Paneling
Parapet walls
Partitions
Pediments
Penthouses
Picture frames
Pigeon proofing
Piers
Pilasters
Pipe and fittings
Plaques
Plate glass frames
Plates, kick, name, push, receptacle
Platforms
Playground equipment
Pools
Print washers
Processing tanks
Pump shafts
Push bars
Racks
Racks, checkroom, coat, dish and tray, towel
Radiator enclosures
Railings
Ranges (stoves)
Reflective insulation
Reflectors
Refrigerators
Roofs
Roof drains, flanges, ventilators
Safety deposit boxes
Sand urns
Sashes
Screens
Scupper linings
Seats
Seat backs
Service tables
Sheathing
Shelves
Shower heads, stalls
Shutters
Siding
Sign structures
Signs
Sinks
Skylights
Smokestacks
Sneeze guard mouldings
Snow guards
Snow melters
Soap dishes and dispensers
Soda fountains
Soffits
Solar grilles
Solar shades (louvers)
Spandrels
Spires
Stairs
Stair nosings, rails, treads
Stanchions
Stand pipe outlets
Statuary
Steam kettles
Steam tables and inserts
Steamers
Sterilizers
Strainers
Swimming pools
Switchboards
Switch box doors
Switch plates
Tables
Tablets
Tanks
Telephone booths
Telephone directory racks and binders
Television antennae
Tellers' window ledges
Termite shields
Terra cotta ties
Terrazzo strips
Thresholds
Ticket booths
Towers, clock, cooling, radio and television
Transoms
Tray slide rails
Trays
Tubs
Umbrella stands
Valleys
Valves
Vapor barriers
Vault doors
Vault linings
Venetian blinds
Ventilators, glass block
Vent guards
Vents
Wainscotting
Wall tiles
Walls
Wash fountains
Waste containers
Watercloset bases
Water coolers
Weatherstripping
Weather vanes
Window boxes, hardware, sills
Window washers' anchor bolts and hooks
Window washers' scaffold guides
Windows, casement, double hung, glass block, pivoting, projecting, screen and storm, show

fabrication is no problem . . .

REPUBLIC STAINLESS STEEL 6c Re

Most sheet metal shops have recognized the advantages of stainless and have become experienced in its fabrication. As a result, it is no problem today to locate a shop that can turn out first-class stainless work to the architect's specifications. Stainless is not difficult to handle. It can be fabricated on standard equipment found in most sheet metal shops. With a little care and experience, any good fabricator can turn out excellent stainless work requiring shearing, brake forming, soldering, cutting, welding, joining or polishing.

Complete, up-to-date information on stainless fabrication is available in two booklets, "How to Fabricate Republic Enduro Stainless Steel" and "Welding Republic Enduro Stainless Steels." Other valuable data is contained in "Architectural Uses of the Stainless Steels," "Stainless Steels for Store Fronts and Building Entrances," and "How and Where to Specify Stainless Steel in Architecture."

Information on where to obtain products and services for stainless steel is available in a "Buyer's Guide for Stainless Steel Products and Services" available on request.





First Congregational Christian Church, Greensboro, N. C. Stainless Steel spire fabricated of types 302 and 304 by the Truitt Manufacturing Co., Greensboro, N. C.



Unusually handsome railing treatment in stainless steel to harmonize with the stainless windows and mullions.

Republic services for architects

To assist the architect in obtaining the best possible use of stainless steel, Republic offers the services of its Metallurgical and Engineering Departments with completely equipped laboratories and staff specialists. The experience of the members of this staff includes contact with practically every known application and method of fabrication of stainless steel. They will be glad to assist the designer in the scientific selection of the proper types, finishes and fabricating techniques for stainless.

Any of the sales offices listed on the back cover will be glad to cooperate with the architect and to suggest fabricators who are experienced and qualified to handle specialized work. They will also assist on questions regarding specifying, detailing and installation. Please call the sales office or distributor nearest you or write to Republic Steel Corporation, Cleveland 1, Ohio.



This sanitary stainless steel kitchen equipment will always be easy to clean and will be kept clean. Note the stainless acoustic ceiling panels.



Dessert counter, salad station, sandwich counter and steam table in Stouffer's Eastland Restaurant, Detroit, Michigan.



Sinks and countertops of stainless steel in the Abbott Laboratories, Oak Ridge, Tennessee. Its ease of cleaning and high corrosion-resistance make stainless steel ideal for "Hot-Lab" installations.

STAINLESS STEEL...

. . . THE METAL OF NEW IDEAS

Presented here are details of several interesting applications for stainless, suggesting that resourceful architects will constantly discover new ideas for stainless. Stainless helps make the architect's work easier for it offers unlimited opportunity in architectural design because of its wide versatility.

Use of stainless in marquee, railings and facade distinguish the handsome home of American Hardware Mutual Insurance Company, Minneapolis, Minnesota. Architects: Thorshov and Cerny; Fabricator: Crown Iron Works Co.





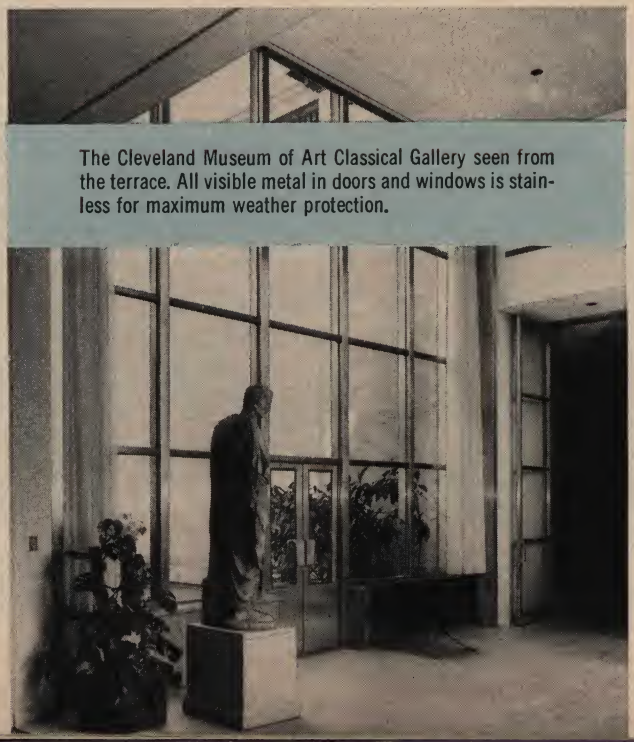
Stainless cross being hoisted atop St. Olaf's Church, Minneapolis, Minn. Architects: Thorshov and Cerny, Minneapolis, Minn.; General Contractor: McGough Brothers, St. Paul, Minn.



Stainless baggage delivery racks and shelving at Cleveland Air Terminal. Architects: Outcalt Guenther and Associates; Fabricator: Franck and Fric Company.



Lastingly beautiful stainless steel posts with chain. Belli and Belli Company, Architects and Engineers.



The Cleveland Museum of Art Classical Gallery seen from the terrace. All visible metal in doors and windows is stainless for maximum weather protection.



Stainless steel windows and doors in Classical Gallery of Cleveland Museum of Art. Architects: Hays and Ruth; Fabricator: Flour City Ornamental Iron Works, Minneapolis, Minnesota.

STAINLESS STEEL . . .

CURTAIN WALL



Morton Salt Company Office Building, Chicago, Illinois. Stainless steel reversible windows and stainless curtain wall. Architects and Engineers: Graham, Anderson, Probst and White, Inc.; General Contractor: Sherman Olson, Inc.



The 45-story stainless steel clad Socony-Mobil Building at Lexington Avenue and 42nd Street, New York, N. Y.—the world's largest metal clad building. Owner: Galbreath Corporation. Architects: Harrison & Abramovitz. Associate Architect: John B. Peterkin. Builder: Turner Construction Company.

Miami Beach Federal Building, Miami, Florida. Curtain wall construction with Republic stainless steel reversible windows and stainless trim with porcelain enamel panels. Architects and Engineers: Edwin T. Reeder Associates; Contractors: Arkin Construction Company.



Prefabricated metal-clad curtain wall panels have been widely used for both single and multi-story buildings. They can be made in a variety of sizes and designs, depending on the particular requirements of the job.

Stainless offers superior corrosion-resistance which results in lower maintenance costs for curtain wall construction. No special surface treatment is required to enhance its corrosion-resistance and it maintains a bright new appearance for the lifetime of the building with a minimum of cleaning.

SPECIAL ADVANTAGES

- Stainless offers superior fire-resistance as its melting point is considerably higher than most nonferrous metals.

- The inherent strength of stainless steel means that building panel components fabricated in the shop will be less likely to become dented or damaged when shipped to the job site or when under erection.

- Stainless is easy to weld and perfect blending of the weld and surrounding areas is readily done with a minimum of work.

COLORED AND TEXTURED

STAINLESS STEEL CURTAIN WALL



Viewed from even a moderate distance, the geometric design of the radically new patterned and porcelainized stainless steel curtain wall on the new Republic Steel Research Center appears to have a uniform, unbroken tone—similar to the effect of the myriad dots which make up the solid tints and shades of half-tones.

The stainless steel used on the curtain wall panels of Republic Steel's new Research Center is embossed with a special pattern and provided with a "two-tone" finish of blue porcelain enamel and shining metal. This finish was produced by first coating the entire sheet with a porcelain enamel frit, then wiping the enamel from the raised areas to expose the stainless prior to firing. After firing, the exposed stainless areas were polished, resulting in an impressive pattern of high spots of polished stainless against a glossy background.

Optical distortion, most obvious in large flat areas, can be controlled by minimizing flat areas or by using heavier material or by providing stiffeners





Close-up view of a section of the patterned stainless steel shows the design created and rolled into the metal.

General view of the new Republic Steel Research Center in Independence, Ohio, finds the patterned stainless sheets—above and below the windows—assuming an over-all tone of blue.



for lighter panels. Recommended practices for size, gage and finish of stainless panels and stiffener ribs and support spacing is available from published sources.

For the Republic Research Center, 272 stainless steel panels were used for the exterior; another 18 panels for the cafeteria. The panels are 4 ft. wide and are of three different heights—2½ ft., 3 ft. and 7 ft. The stainless sheet employed was 20 gage, Type 304, with a 2-B finish.

Colored and textured stainless open up new fields for curtain wall architecture. There are 30 different standard porcelain colors available. This color choice is multiplied many times by the various shades and tints possible by combination of these standard colors. In addition, there are at least 50 different rolled design patterns that may be selected. Textured stainless sheet is considerably stronger than ordinary sheet and lighter gages can be employed having equivalent stiffness and strength.

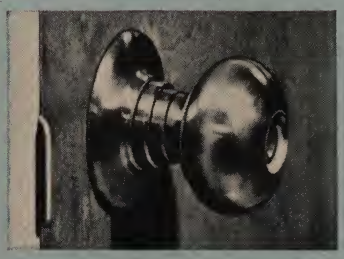
The market for textured stainless steel includes such product applications as curtain walls; surfacings for building foyers, elevators, kitchens, cafeterias, store interiors and store fronts; ornamental uses of many kinds, including wainscoting; numerous "scuff resistant" uses, such as bus seat backs, revolving doors, stair treads, walkways, subway wainscoting, counter fronts.

miscellaneous applications of stainless

Each year marks an increase in the architectural use of stainless steel. Architects and designers find it the answer to many of their design problems for both interior and exterior applications. In outdoor applications, stainless has proven to be impervious to weather. Installations made over 30 years ago are in perfect condition today and there is every indication that they will remain that way indefinitely.

For interior use, the gleaming lustre of stainless steel adds a note of luxury to any type of installation. Its tough, hard surface resists scratching and marring and its handsome appearance is easy to maintain in a like-new condition.

Stainless steel gutters and downspouts are manufactured by Republic Steel's Berger Division from Type 301 in several styles. Roof drainage products of stainless steel are highly resistant to corrosion and are the most durable and long lasting.



Exterior lockset of stainless will always stay bright and attractive.



Stainless steel has long been the favorite material for sign makers. It is readily fabricated and has a very high strength to weight ratio however, its enduring beauty is the chief reason for its popularity in sign work.



Railings of stainless steel add a luxurious note to the finest interiors. Their hard abrasion resisting surface and gleaming luster that requires little maintenance make them the first choice for public buildings where service is severe.

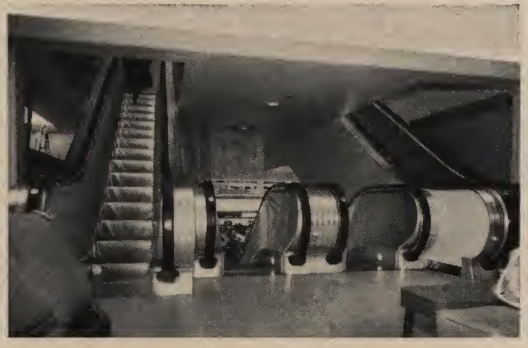


Door hinges of tough, gleaming stainless.

STAINLESS STEEL REVERSIBLE WINDOWS

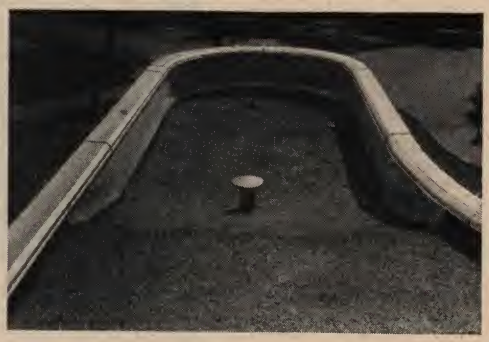
Modern, completely air conditioned, fireproof buildings should have an anticipated acceptable tenant life of 100 years. Here's a window with that life expectancy. The highest quality product ever offered to architects and owners.

Republic's Truscon Reversible Window is fabricated of Type 302 stainless steel that resists rust and corrosion and is almost immune to weather. It never needs costly painting or steam cleaning. An occasional detergent or soap and water wash will restore its original beauty for the life of the building.



Moving stairways in stainless look more attractive and take severe service without denting or scuffing.





Stainless steel is the perfect metal for capping and flashing—corrosion-resistant, it will never bleed and discolor adjacent stonework or other material.



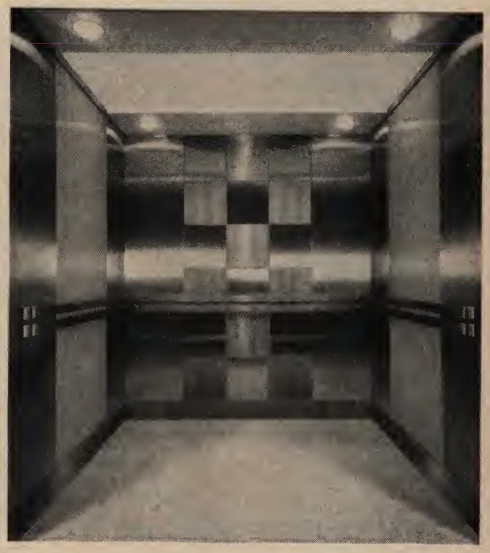
Double gasketing of polyvinyl chloride prevents leakage of heated or cooled air and provides an estimated annual savings of $4.25 per opening over conventional windows in a fully air conditioned building.



Rotates full 360° to permit washing from inside and cut cleaning costs by 50%.



Although window is designed for fully air conditioned buildings this hold open arm is provided to hold ventilator 3 inches open should air conditioning fail. For safety, the ventilator can only be opened by a special key and is automatically locked when in closed position.



Elevator cab showing variety of stainless steel finish achieved by sandblasting and special treatments. Manufactured by The W. S. Tyler Company, Cleveland, Ohio.



As may be seen from these pictures, stainless Types 303 or 430F fastenings are available in many types for various purposes. It is essential that only stainless fastenings be used with stainless installations to avoid rusting and contamination of the stainless.

REPUBLIC STEEL

Stainless steel may be given various decorative treatments

TEXTURED STAINLESS

Interior uses of textured stainless is becoming increasingly popular. Texturing is a rolling process which embosses a pattern into metal. Type 302 textured sheets have greater rigidity than flat metal, greater strength, and greater resistance to denting. Textured surfaces also conceal scratches and finger marks and discourage "doodlers."

SCULPTURED STAINLESS

The possibilities of using stainless for varied decorative effects are almost limitless. The sculptured figure shown at right is a little over 2¼ feet in length. Circles are formed from bars and figure is produced from sheet by repousse method. Figure is permanently blackened for contrast and artistic effect.

QUILTED STAINLESS

Another special treatment of stainless is a brake formed design known as "quilted pattern." "Quilting" can be done in any sheet metal shop on a standard brake press. The pattern adds variety to large areas and imparts a rich, attractive appearance.



Twin Coach Inn, near Pittsburgh, Pennsylvania. Fabricator: Allied Refrigeration Co., Pittsburgh. Textured stainless steel used in one of many designs available for bar facing.



Ornamental medallion, Ohio Oil Company Building, Findlay, Ohio. Fabricator: Rose Iron Works, Cleveland, Ohio. Architectural ornament and letters made of stainless steel.



The Corner Hut, Chicago, Illinois. Here an unusual effect has been obtained by giving a quilted pattern to 26-gage, No. 4 Finish, Type 302.

ETCHED STAINLESS

Stainless may be etched to obtain a rich-looking effect. It may also be etched and filled in with color, either in solid tones or in air brush effects. It also can be Tampico brushed to produce a striped pattern.



Elevator doors, Daniels and Fisher Store, Denver, Colorado. Elevator doors with etched pattern are typical of this kind of decorative trim.

SHEET FINISHES . . .

No. 1 Finish should be used whenever a great amount of forming is necessary. It is also applicable at points where appearance is not a primary factor but where corrosion-resistance is important, such as mail chutes, tanks, tubing and a variety of other uses.

No. 2B Finish and No. 2D Finish are similar to No. 1 except that they have a better finish and smoother surface due to cold roll processing.

No. 3 Finish is a ground finish somewhat coarser than No. 4 Finish and used for similar exterior and interior applications.

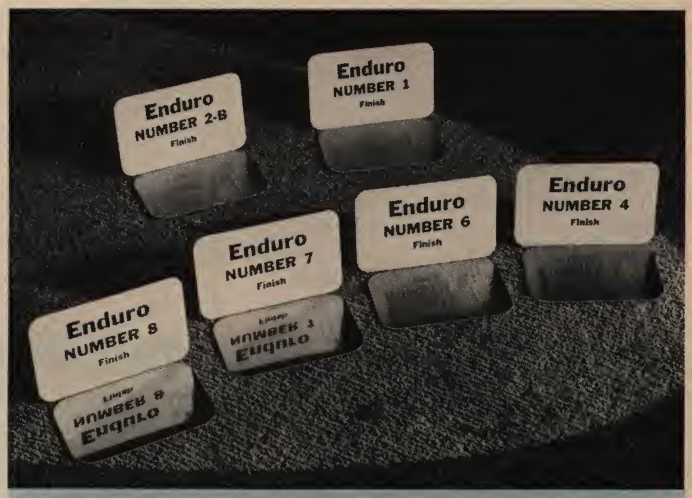
No. 4 Finish is ground and mechanically polished and is very popular for exterior and interior architectural applications. It possesses a ground surface appearance with a medium lustre and is the finish recommended for most architectural uses.

No. 6 Finish has a silvery lustre and has much lower reflectivity than No. 4. It can often be used to blend with finishes of higher lustre or with other metals. Higher lustre finishes, such as No. 7, are obtainable and are similar to No. 4 with the exception that the lustre obtained by buffing is much brighter.

No. 8 Finish is the highest obtainable finish in commercial steel practice. All of the grinding lines are removed and a sheet of high reflectivity is obtained. Little need exists for this finish in architectural applications.

STAINLESS FINISHES . . .

Stainless steel is available in a number of different finishes, selected for desired effects. At the same time, there are limitations on the type of finish which should be specified for any given application. For example, it is inadvisable to use polished sheets for extra deep drawing operations where score marks from dies are likely to occur or where it is necessary to anneal for a second drawing operation. Of course, in such cases, polishing could be done after fabrication. Republic Steel Corporation and its distributors will be glad to advise on the selection of proper finish.



The various sheet finishes are designated as follows:

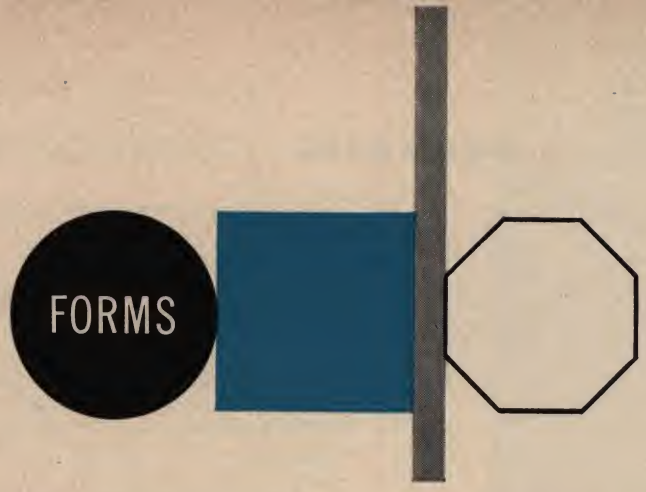
No. 1—hot rolled, annealed, and pickled.
No. 2-B—full finish (bright cold rolled).
No. 2-D—full finish (dull cold rolled).
No. 3—intermediate finish on one or both sides.
No. 4—standard finish on one or both sides.
No. 6—standard finish, Tampico brushed on one or both sides.
No. 7—high lustre finish on one or both sides.
No. 8—mirror finish on one or both sides.

STRIP FINISHES . . .

The finishes of stainless steel cold rolled strip are designated as follows:

No. 1—cold rolled, annealed, and pickled.
No. 2—cold rolled, annealed, pickled, and rerolled.

STAINLESS FORMS



Stainless steel is furnished as listed below.

All shapes are produced by forming, rolling, or drawing. For detailed information, consult any of the Republic Sales Offices listed on the back cover.

- rounds—hot rolled, cold drawn, centerless ground, polished.
- squares—hot rolled or cold drawn.
- hexagons—hot rolled or cold drawn.
- flats—hot rolled or cold drawn.
- special shapes—on application.
- strip—cold rolled.
- plates—practically any size and thickness obtainable in plain steel.
- sheets—standard gages and sizes, annealed and pickled, cold-rolled, polished one side and polished both sides.
- forging billets.
- structural shapes.
- tubing—seamless and Republic ELECTRUNITE® electrically welded. Bright annealed or polished.
- welding rods—uncoated rods for electric and acetylene welding. Coated rods may be obtained from warehouse or jobber.
- castings—Republic does not produce stainless castings. However, they are readily available from a number of responsible foundries.
- fastenings—bolts, nuts, rivets, screws, nails, tacks, spikes, wire and many other items of stainless steel can be obtained from various sources. Names of manufacturers will be gladly furnished.

ROOF DRAINAGE PRODUCTS . . .

Whether you're designing an institution or a private dwelling, stainless steel roof drainage products will provide the answer to trouble-free service and long-run economy. Fabricated by Republic's Berger Division, these items are made of Type 301, 28 gage (.015″) stainless in dull finish.

Stainless steel under normal conditions will last the lifetime of the building. Maintenance is negligible for stainless does not bleed or discolor paint. The finish of these products blends with any style or color scheme, but, if desired, they may be painted. Stronger than similar products of ordinary steel or other metals or materials, they are able to withstand heavy loads of wind, snow and ice.

The high strength-weight ratio of stainless steel provides an added advantage in that it permits working with extremely long sections. This means less handling, fewer joints and reduced installation costs.

Stainless roof drainage products are available in round, round corrugated, and square corrugated conductor pipe in varoius sizes; also "K" gutters, eaves trough, and a complete assortment of fittings.

STAINLESS TUBING AND PIPE . . .

ELECTRUNITE Stainless Steel Tubing is available in sizes ranging from ¼″ O.D. to 5″ O.D. and in various analyses, finishes and gages. Sizes from 5″ O.D. to 40″ O.D., also in various analyses, finishes and gages, will be furnished upon request.

ELECTRUNITE Stainless Steel Pipe is available from ⅛″ I.P.S. through 2″ I.P.S. in A.S.A. schedule 40S; from ⅛″ I.P.S. through 4″ I.P.S. in schedule 10S; and from ½″ I.P.S. through 4″ I.P.S. in schedule 5S wall thicknesses. Larger sizes in various analyses and finishes will be furnished upon request.

For further information, write Steel and Tubes Division, Republic Steel Corporation, Cleveland 8, Ohio.

REPUBLIC GALVANIZED SHEETS

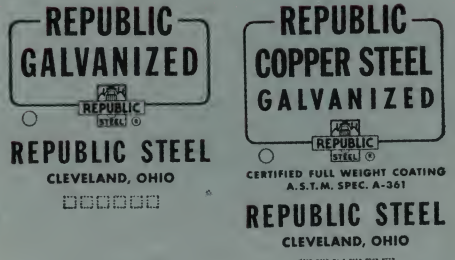
Republic Galvanized Sheets are available in two different types of base steels:

1. A high-grade open hearth steel, and
2. Republic Copper Steel, a type with 0.20 to 0.30% copper added to improve corrosion-resistance.

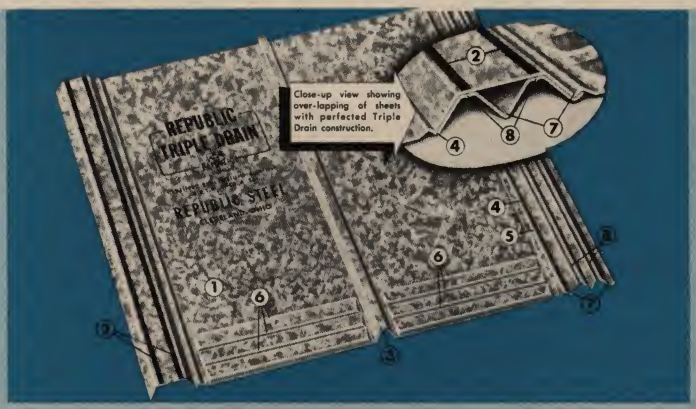
Republic's regular galvanized sheets, made from a high-grade open hearth steel, then galvanized for best corrosion-resistance, are satisfactory for many applications. Included are blower ducts, cabinets, clothes chutes and dryers, heating and ventilating ducts, metal boxes, radiator shields, smoke pipe, and many others.

For applications requiring more corrosion-resistance, Republic Copper Steel Sheets are recommended. Tests have shown that uncoated copper steel sheets outlast regular uncoated sheets as much as 2 to 2½ times. This inherent characteristic, plus the added protection of zinc, makes these sheets suitable for specifications requiring top quality.

Republic galvanized sheets are identified by the stencils shown at right. Jobbers in all large cities stock these quality products.



These stencils readily identify Republic galvanized sheet products. The series of dotted-line boxes beneath each stencil represents the spaces which, in actual practice, would show the heat number. Full control over the product from melt to finished product is possible by keeping a careful record of each heat as it is processed through the mill.

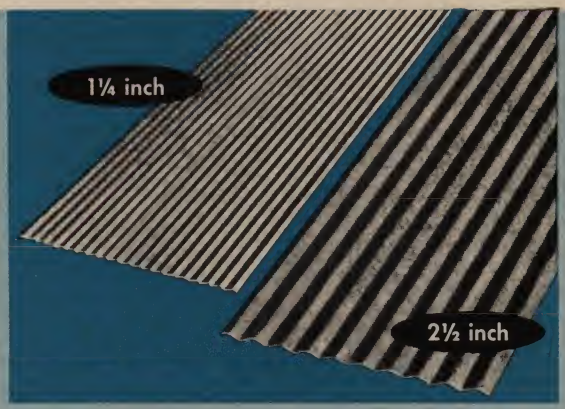


REPUBLIC TRIPLE DRAIN ROOFING

1. Water or dust does not remain on flat top to start chemical reaction.
2. Painted nailing guide lines show where to drive nails.
3. Center crimp gives added longitudinal rigidity, prevents sagging or buckling.
4. Guide for top lap guarantees a snug fit throughout entire length of sheet.
5. Wind deflector guards against buckling and prevents any capillary action of water.
6. Rib stiffeners across sheet eliminate wind flapping and stop syphoning.
7. Steep "V" channels drain off water faster, keeping them clean, free of dust or chaff.
8. Nail channel prevents slipping, crooked driving, damage to sheet.

accessories for use with triple drain roofing

Adjustable Ridge Roll, End Wall Flashing, Gambrel Roof Joint, Overhang Eaves Drip, Gable End Starter, Gable End Finisher, and Flared Eave Joint. Available only in 26, 28, and 29 gage. Furnished in plain galvanized steel or steel.



REPUBLIC ROOFING AND SIDING

Ridge Roll — Plain. Corrugated — Plain, with or without nailing flange; length 10 ft.; roll sizes, 1, 2, 2¼ inches; apron size 2 to 3 inches. Girths 12, 14, 16, and 18 inches; 24 gage and lighter.

Corrugated Sheets — Light but rigid; good fire protection. In 1¼" style, 24 gage and lighter; 2½" style, 18 gage and lighter. Covering width 24" (standard widths 26" and 27½"). Lengths: 6, 7, 8, 9, 10, 11, and 12 ft.

REPUBLIC ELECTRO PAINTLOK SHEETS

produced the modern way through electroplating . . .

Republic Electro Paintlok Sheets are galvanized by the Electrolytic process that deposits an accurately controlled layer of pure zinc on a cold rolled base metal. They are then chemically treated to provide an inert, finely crystalline, non-metallic phosphate coating that is integral with the zinc and highly absorbent in character.

offer longer life for architectural products through . . .

MAXIMUM PAINT ADHERENCE: The Electro Paintlok coating grips the paint with thousands of tiny "teeth" that never let go.

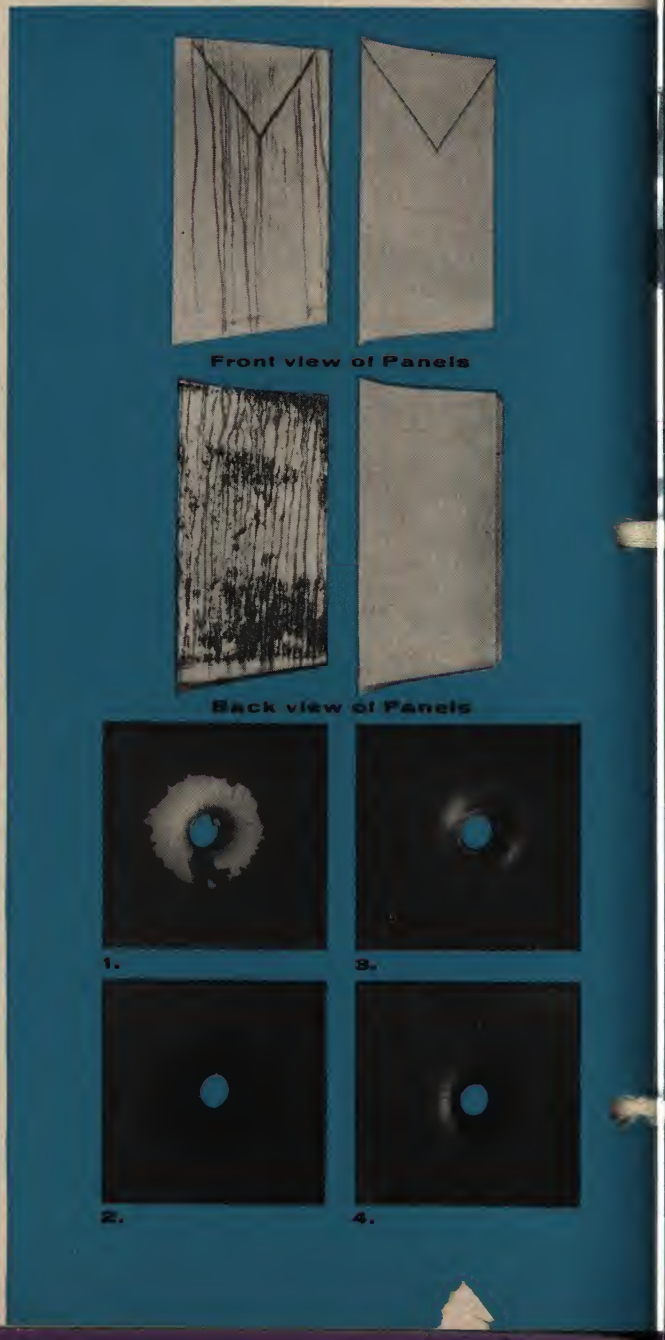
RESISTANCE TO CORROSION: Electrogalvanizing, combined with special paint-bonding chemical treatment effectively retards corrosion when the painted surface is scratched or otherwise abraded. Creeping of corrosive elements underneath the paint from the point of damage is also minimized.

Tested and Proved

Sprayed with a 20 percent salt solution for 72 hours at 90° F. after a V-shaped scratch was made in the enamel, stove panels of ordinary cold rolled steel (left) and of Electro Paintlok (right) appeared as shown at right, clearly demonstrating the remarkable ability of Electro Paintlok to resist rust and the creeping of corrosive elements from point of damage under painted surface.

Here's proof:

Given the "bullet test," samples of ordinary hot dipped galvanized sheets and Republic Electro Paintlok Sheets appeared as in the unretouched photos at right. No. 1 is hot dipped galvanized specimen immediately after being pierced by the bullet. Note how paint has cracked off in a wide area around hole. No. 2 is the same sheet after three months exposure to the weather. Nos. 3 and 4 are Electro Paintlok specimens given the same treatment.



Applications

Electro Paintlok Sheets are recommended as especially suited for sheet metal applications which are to be subsequently painted. Typical applications include: ventilating ducts, garage doors, cabinets of all kinds, kitchen range hoods, venetian blinds, signs, marquees, clothes chutes, metal partitions, radiator shields, reflectors, refrigerator equipment, wall and partition panels for gas stations, dispensaries, clinics, restaurants, stores, etc.

In short, any sheet metal product that is normally painted is a perfect application for these sheets. They are not to be used, however, for gutters, downspouts, roofing, or other exposed purposes. For the most part, exterior applications are ones where prefabricated, synthetic enameled panels are used.



Electro Paintlok wall tile with a lustrous and durable synthetic enamel finish manufactured by Duratile Corporation, Mishawaka, Indiana.



Superior weather resistance, attractive appearance and long life are important features of these handsome garage doors made from Republic Electro Paintlok.

Installing acoustical ceiling pans. These pans, made of Electro Paintlok, measure 12 inches by 24 inches. They are perforated, insulated, and made to fit into "T" rails installed across ceiling. Paint adherence and color uniformity are particularly important in this type of application.

National Gypsum Co. Office, Buffalo, New York. Architects: Backus, Crane, and Love, Buffalo.



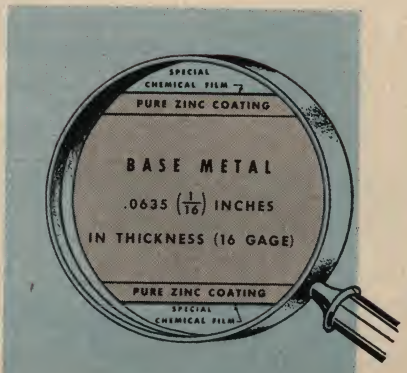


Elevator doors and panels of Electro Paintlok. The ease of finishing Electro Paintlok is very important in grained panels such as these. This difficult finish is applied by hand.

REPUBLIC STEEL

Gages and sizes

Electro Paintlok Sheets are available in thicknesses from .0090 to .1083 inches and in widths to 60" and cut lengths to 156", depending upon thickness.



sales offices

In order to give efficient service to users of its steel products, Republic maintains sales offices in principal cities. Specially trained men in these offices are prepared to offer competent technical advice. A phone call will bring a Republic representative ready to discuss any problem or to give complete information on all products.

Birmingham 13, Alabama
Boston 16, Mass.
Buffalo 3, New York
Chicago 4, Illinois
Cincinnati 2, Ohio
Cleveland 1, Ohio
Dallas 1, Texas
Dayton 2, Ohio
Denver 2, Colorado

New Orleans 12, La.
New York 17, N.Y.
Philadelphia 3, Pa.
Pittsburgh 22, Pa.
St. Louis 3, Mo.
St. Paul 1, Minn.
San Francisco 5, Calif.
Seattle 1, Wash.
Syracuse 2, N. Y.

Detroit 2, Michigan
East Hartford 8, Conn.
Grand Rapids 2, Mich.
Houston 2, Texas
Jacksonville 2, Fla.
Kansas City 5, Mo.
Los Angeles 17, Calif.
Louisville 2, Ky.
Milwaukee 2, Wisc.

Tulsa 3, Okla.
Warren, Ohio
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CANADIAN SALES:
Ontario Representative,
Commerce and Transportation
Building, Toronto, Ontario

EXPORT DEPARTMENT,
New York 17, N. Y., U. S. A.
CABLE ADDRESS "TONCAN"

For information on additional Republic products also see Sweet's Files as follows:

	Product Design	Plant Engineering	Architectural	Light Construction
Berger Division			8g/Re, 23d/Re	
Republic Steel	1a/Re		6c/Re, 29a/Rep	
Steel & Tubes Division	1e/Rep	2d/Rep	2f/Re, 32b/Re	
Truscon Division			2f/Tr, 12a/Tr 16b/Trs, 16h/Tr, 17b/Tr, 3d/Tr, 17a/Tru	6b/Tr

REPUBLIC STEEL

GENERAL OFFICES • REPUBLIC BUILDING • CLEVELAND 1, OHIO

Adv. 1085 15C-59

Printed in U.S.A.

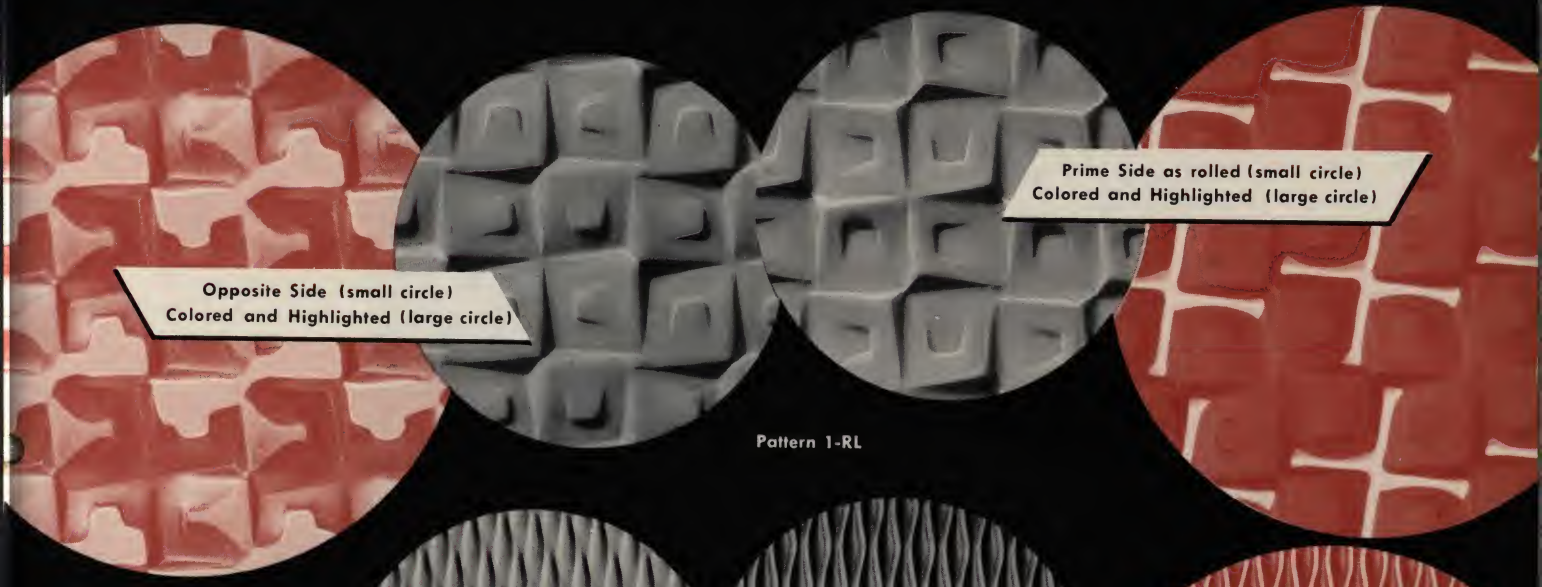
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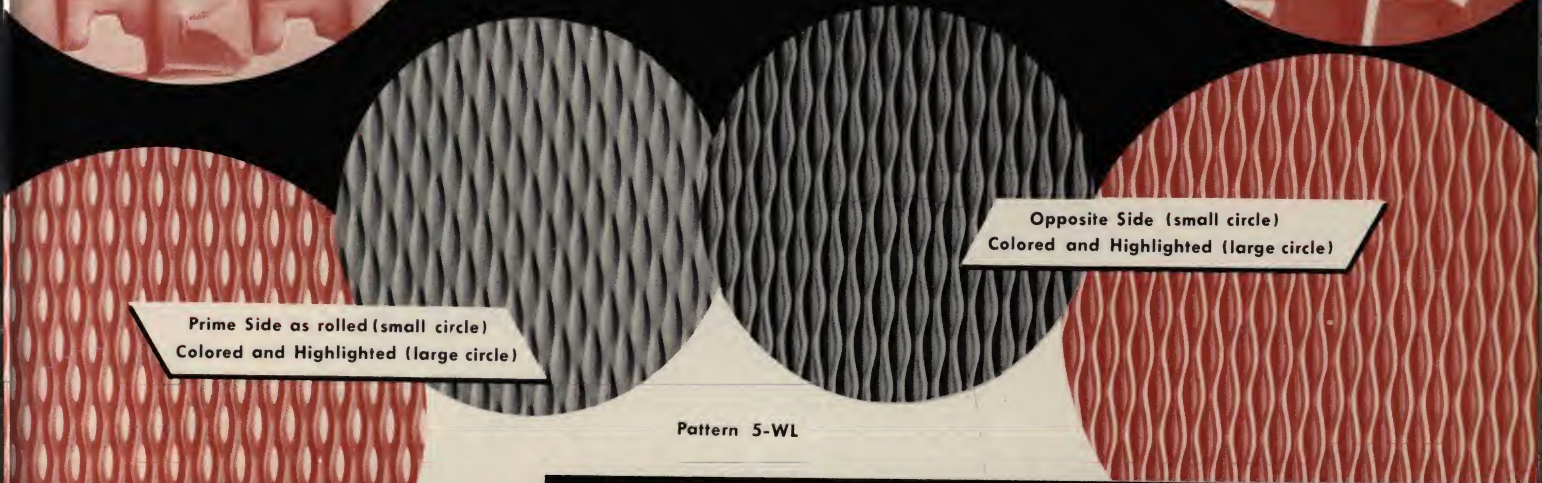
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Now 3-52" Wide RIGID-tex Patterns

FOUR BEAUTIFUL DESIGN EFFECTS FROM EVERY PATTERN





Write for Illustrated Brochure

RIGID-tex METALS®
ARCHITECTURAL FILE

RIGIDIZED METALS CORPORATION

NOT, "WHERE IN THE WORLD"



ITALY



U.S.A.



Whitehead Metals, Inc., Syracuse, N. Y. Sales Office and Warehouse Curtain Walls of Stainless RIGID-tex Metal, Pattern 1-RL.

Apartment Building in Milan, Italy. Panels of perforated Stainless RIGID-tex are combined with fiberglas panels and slanting bars to produce this original porch railing.



HAWAII

Above: Store front in Ala Moana Center, Honolulu. Facia, Copper RIGID-tex Metal, Pattern 1-RL.



WEST GERMANY

Left: Kitchen, West Germany. Tile: Stainless RIGID-tex Metal. Patterns, 1-HM, 2-CB, 5-WL; Countertop, 2-FL.

BUT ALL OVER THE WORLD

MORE AND MORE ARCHITECTS

are specifying **RIGID-tex METAL®**

Yes, as an increasing number of architects learn the many advantages of RIGID-tex Metal, it is appearing in curtain wall applications, interior wall surfaces, in building foyers, elevators, kitchens, cafeterias, stores. Ornamental and scuff resistant uses include wainscoting, revolving doors, stair treads, walkways, subway wainscoting and counter fronts.

RIGID-tex Metal combines Beauty and Strength . . . "BEAUTILITY". Tests have shown that overall impact resistance of 20 gauge design-strengthened RIGID-tex Metal is equal to that of a 14-gauge flat sheet. Objectionable optical illusions of flat metal, such as wavy areas, indentations and "oil-canning" are entirely eliminated in the patterned surface of RIGID-tex Metal.

There are more than 45 standard patterns of RIGID-tex Metal available in a variety of sparkling, eye-arresting colors and finishes to give the architect an unlimited opportunity to achieve the effects he desires.

AVAILABLE IN MANY BEAUTIFUL FINISHES

In addition to all standard mill finishes the following special finishes are available.

SATIN FINISHES:

Accomplished by polishing with an abrasive belt. This is usually processed with 100 to 120 grit and is comparable to a commercial No. 3 finish.

SUPER LUSTRE FINISH:

Is a finish wherein a very high lustre is achieved through a use of an electrolytical polishing bath.

COLORIZED AND HIGHLIGHTED FINISH:

Accomplished by applying a colored coating to the mill finish, baking and then removing the tops of the pattern characters by buffing with abrasive belts. Color can also be applied by porcelain enameling with or without subsequent high-lighting. RIGID-tex Metal is also available with PERMYRON, anodized, vinyl and acrylic finishes.

2-D FINISH AND HIGHLIGHTED:

A dull (or Butler) mill finish wherein the tops of the pattern characters are buffed to a very high lustre creating a unique contrast in finishes.





First Methodist Church, Pompano Beach, Florida. Curtain Walls, Porcelainized light blue, RIGID-tex Metal mat finish, Pattern 1-RL.



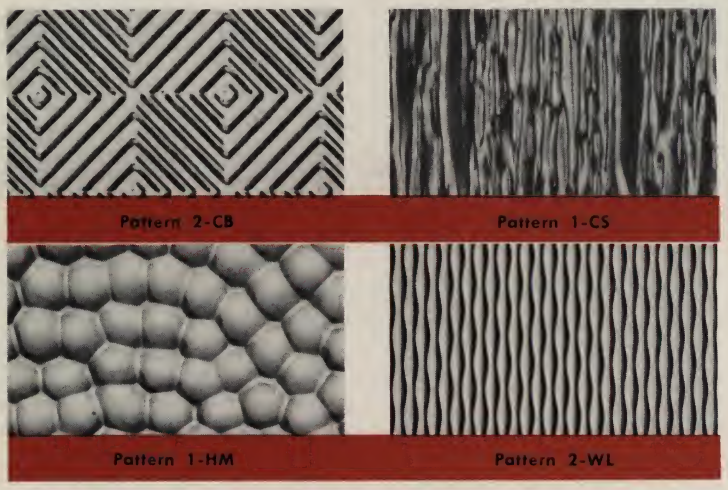
Research Center of Republic Steel Corp., Independence, Ohio. Curtain Walls, stainless RIGID-tex Metal, Pattern 1-RL, Porcelainized and Highlighted, Deep Blue.

BEAUTILITY®

As shown on the cover and on this page (right) from every pattern of RIGID-tex Metal, four beautiful effects can be obtained by coloring and highlighting prime side or opposite side. Result: Texture and color combinations limited only by the imagination!

PATTERN	WIDTH**	MAXIMUM** THICKNESS	MAXIMUM DEPTH	SCALE
ACC-4-i	38"	.075	.320"	1/4
1-ACC	39"	.078	.100"	Full
2-CB	24"	.032	.010"	Full
1-CS	37¾"	.078	.032"	Full
2-FL	38"	.078	.040"	4/5
1-NA	52"	†	†	†
1-HM	38½"	.050	.025"	Full
2-WL	37"	.025	.007"	Full
5-WL	52"	.062	.015"	Full
6-WL	37¼"	.078	.040"	Full
1-RL	52"	.062	.072"	Full

**Maximum thickness and widths are based on type 302 Annealed, Stainless Steel. Limitations vary with width required and type of metal.
†Write for complete specifications.





NEW COLORS

Three *special metallic colors* . . . Venetian Bronze, Sunbrite Gold and Gunmetal, have been developed by Howard Ketcham, Color Engineer, for the new Color-Rold Process by Techni-Coatings Corp. for stainless steel and other ferrous and non-ferrous sheet or strip. When applied to Stainless Rigid-Tex Metal, the raised portions of the pattern can be highlighted to reflect the natural color of stainless steel, and the appearance of these metallic colors can be varied by burnishing the raised portion of the texture to produce *controllable* degrees of highlights. This burnished or highlighted metal makes the colors appear even more metallic.

These colors are also available and can be highlighted: Amber Yellow, Stone Gray, Obsidian Black, Cinnabar Red, Agate Green, Indian Turquoise, Lapis Blue, White.

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York, Penn.	Edgcomb Steel Corporation	

Licensed producers of RIGID-tex Metal located in Australia, England and Sweden.

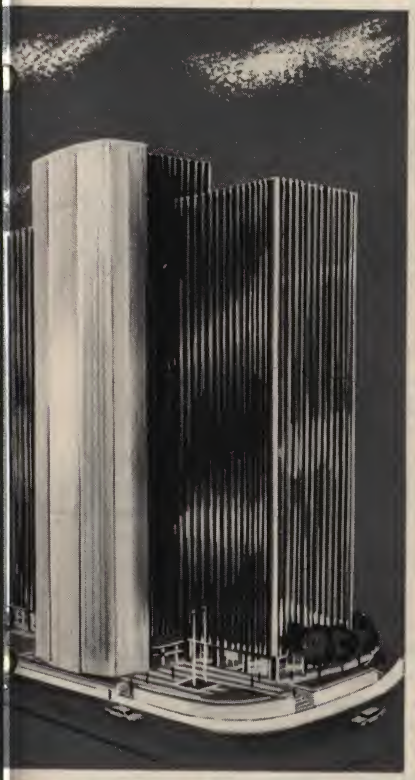
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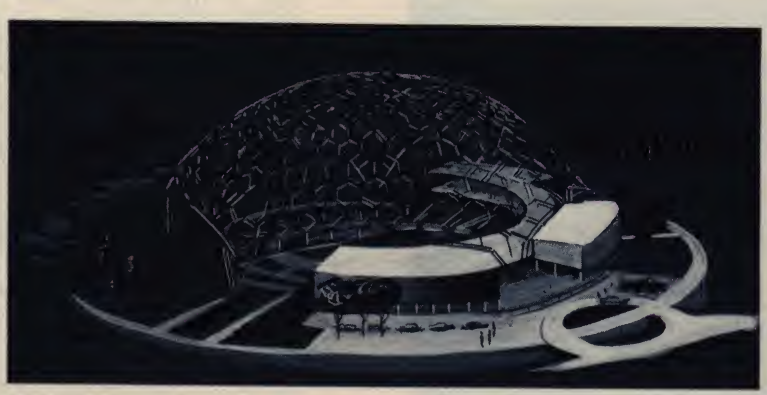
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architectural

MicroRold®

STAINLESS STEEL

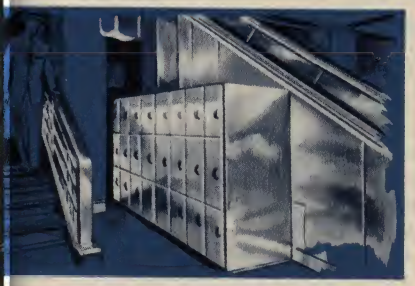








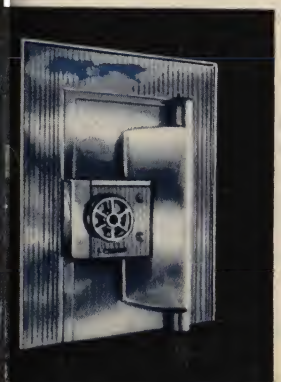




APPLICATIONS

FINISHES

SPECIFICATIONS









WASHINGTON STEEL CORPORATION

architectural MicroRold

Washington Steel was the first stainless steel producer to recognize the superiority of the Sendzimir Cold Reduction Process for stainless steel sheet production. This method provides exceptionally closer tolerances than are possible with conventional rolling equipment and it ushered in a new era of precision stainless steel rolling. The ability to improve surfaces and accurately control uniformity of thickness has now made the Sendzimir Mill a standard production unit in the stainless steel industry.

However, it takes more than just a precision mill to produce stainless steel of MicroRold quality. It takes operating know-how. Only Washington Steel Corporation can offer 12 years of practical experience in precision rolling of stainless steel.





advantages

- will not rust, corrode or discolor when properly applied and maintained
- attractive appearance
- sturdy and long lasting
- economical maintenance
- luxurious decorative "silver sheen" finish
- high strength-weight ratio
- readily fabricated

the versatility and beauty of stainless steel

Stainless steel combines pleasing beauty, strength, corrosion resistance, long life, easy cleaning, low maintenance and workability. Architects may employ stainless steel creatively, exploiting its economic as well as functional superiorities.

There are many types and grades of stainless steel. The architect and builder may choose the well-known 18-8 (chrome-nickel) grades, which are easy to form and fabricate, offer excellent resistance to weather corrosion and are widely used for exterior architectural applications. 18-8 stainless steel is seen on handsome storefronts, building entrances and curtain wall panels throughout the world. However, in times when there is a shortage or curtailment of nickel, many architects specify Type 430 stainless, which is the lower cost, nickel-free grade most resembling 18-8 in fabricating qualities and service. Major architectural work has been done with Type 430. With somewhat less corrosion resistance than 18-8, 430 is still definitely a corrosion-resistant steel, capable of giving years of dependable service without too much care.

With any stainless steel, of course, the architect may specify desired finish—from dull to high mirror—and the fabricator will be happy to explain the many types, finishes and characteristics available in this versatile metal.

appearance and long life

Merchandisers, building owners, operators—and the architects who help guide their thinking—are more and more turning to stainless steel as architectural trim, structural components and allied building items. Stainless is beautiful, and remains beautiful. Its resistance to corrosion and ordinary atmospheric attack is well known—and demonstrated daily in such permanent installations as the Chrysler and Empire State Buildings in New York, and in the Gateway Center skyscrapers in Pittsburgh. Where the stainless surfaces are not exposed to the washing action of rain, it is customary to occasionally remove deposited soil film to prevent possible corrosive or staining effects.

The permanent beauty and long service life of stainless steel make it one of the finest long-range investments.

fabrication

Stainless steels may be welded, soldered, formed, drawn and spun without unusual difficulty.

Stainless steel sheet may be used for the forming of parts which might in other metals be cast—the strength of stainless makes it quite feasible to specify thinner sections than castings ordinarily offer. Stainless steel, die-formed or roll-formed from sheet or strip, often replaces extrusions of other metals that possess less strength.

"Brake forming" of stainless steel takes over where the quantity production of roll or die forming ends. Individual shapes not available in stock can be made up on a bending brake by any competent sheet metal worker. The complexity of form that metal workers can achieve with stainless is illustrated by hundreds of applications in nearly any city.

STAINLESS STEEL



colored stainless—a new dimension

Washington Steel has successfully developed a new color coating process, known as "ColorRold," for applying uniform color finishes on its regularly produced MicroRold stainless sheet and strip. This new system is based on modified acrylic resins, dissolved in organic solvents of the ketone and ester types, and when baked at moderate temperatures, produces a thermosetting film of considerable durability, toughness, weathering and fabricating properties. The eleven basic standard colors in the ColorRold system are functional and decorative, insuring its adaptability to all types of buildings employing curtain wall construction as well as an unlimited number of other architectural purposes. These include interior walls in corridors and lobbies, doors, window frames, trim and even acoustical ceilings. Examples of its use include Gateway No. 4, Pittsburgh and the American Society for Metals Building, Cleveland.

Offering resistance to many chemicals, acids, lubricants, cleaners and detergents, ColorRold also shows remarkable ability to withstand scuffing and abrasion. Preliminary outdoor tests confirm that acrylic organic coatings, in combination with stainless steel, have better weatherability than common metal coloring systems—anodizing, vinyls, lacquers and enamels.

ColorRold conforms well to all of the fabricating techniques common to regular stainless steel—shearing, bending, roll forming, stamping and deep drawing. During fabrication, no cracking, peeling or other coating interruption occurs, due to its high degree of plasticity and excellent bond to the metal.

For detailed information and specifications on ColorRold stainless steel write today for your free copies of Bulletins 359 and 459. Address your request to: Product Development Department, Washington Steel Corp., Woodland Ave., Washington, Pa.

texturing for added beauty

In addition to the familiar polished and rolled finishes available on flat stainless, both sheet, strip, and ColorRold stainless can be given an embossed texture by cold working with specially shaped rolls. Patterns may vary from a coarse, knobby treatment to a fine ripple, suggesting woven fabric. There are certain advantages for the architect in the diffused reflectivity of these textured patterns. Also, from a practical viewpoint, textured stainless discourages marking and disfigurement. Interesting effects can be accomplished by using various combinations of color, texture, perforations and burnishing. On colored sheets the appearance can be varied by burnishing the raised portion of the textured pattern to let the bare stainless show through and produce controllable degrees of highlighting.

availability

MicroRold sheets are available in widths up to 36" with thicknesses as low as .005", and in widths up to 48" with thicknesses as low as .010", in all commercial finishes and tempers.

Washington Steel also offers VERI-THIN MicroRold stainless steel strip in widths up to 23 15/16" and in thicknesses from .0015" to .009" in commercial finishes and tempers.

applications

exterior

- superstructure
- roof and drainage
- exterior walls
- storefronts and entrances

interior

- lobbies and public areas
- use or rental areas
- machinery and service areas

specialized

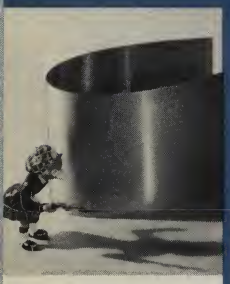
- kitchen, cafeteria, restaurant
- medical, hospital, laboratory
- bank and financial institutions
- industrial installations
- rest room facilities and equipment
- miscellaneous



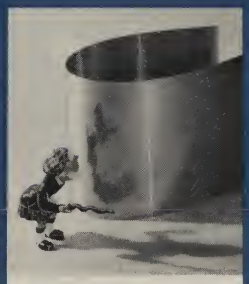
CORPORATION WASHINGTON, PA.

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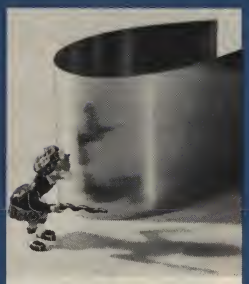
MicroRold® QUALITY STAINLESS STEEL FINISHES



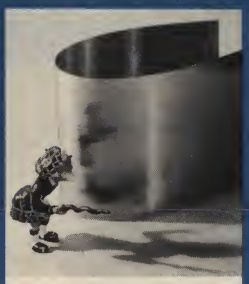
2D—A silvery white, but non-lustrous, surface produced by annealing and pickling cold reduced material. Steel sheets & strip in this condition are most ductile and the surface holds lubricant well for severe drawing operations.



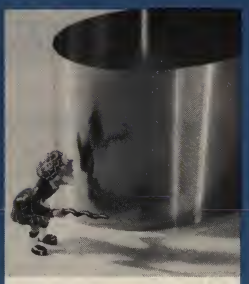
2B—A bright finish acquired from the polished rolls on a "skin pass" or temper mill. This surface is somewhat more dense and hard than 2D and is a better starting surface for later finishing and buffing operations.



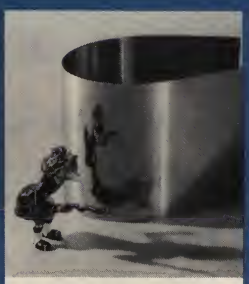
No. 3—This surface is made by grinding with a No. 100 abrasive. This surface is smooth but not as reflective as 2B.



No. 4—A finer finish than No. 3 made by grinding with a No. 150 abrasive. Like No. 3, this surface is easily blended with hand grinders after forming, drawing or welding.



No. 7—Good reflectivity and brilliance made by polishing with a No. 400 abrasive. This semi-mirror finish must be protected during fabrication by adhesive paper or strippable plastics lest the finish be marred beyond repair.



BRIGHT—A highly reflective surface made by reducing with highly polished glass-hard rolls. This finish is only available in Type 430 stainless.

specification guide

The following specifications are suggested as covering good practice in handling MicroRold Stainless Steel for architectural purposes.

grade

Stainless steel shall be AISI Type . . . as manufactured by Washington Steel Corp. or equivalent and annealed, except where other tempers are noted on the drawings.

finish samples

Finish shall conform to standard mill finish practices as specified on drawing except where a special finish is indicated and agreed on. Fabricator to submit for approval samples of all non-standard finishes.

shop drawings

Shop drawings shall be submitted showing in detail all work to be furnished. Drawings, full scale unless impractical, shall show metal thicknesses, construction details, methods of joining, necessary reinforcing, anchoring and supports. Drawings shall show methods of applying and the composition of all screws and other fastenings. Finishes which will be applied shall also be specified on the drawings.

workmanship

Workmanship shall be performed in recognition of the high quality of material being fabricated and installed. Welds shall be free from defects and shall be finished and blended as closely as is practical to the parent metal. Joints shall be tight and unconcealed fasteners shall be blended as closely as is practical to the adjoining metal. All surfaces of stainless shall be kept clean and free from contamination by iron or ordinary steel.

fasteners

All fasteners shall be of stainless steel.

fabrications

General: Wherever possible, all parts shall be formed, cut, drilled, tapped, welded, fitted, or otherwise fabricated in the shop.

welding

In arc and gas welding, electrodes or filler rods shall be of a proper type as recommended by the manufacturers. This also applies where stainless and carbon steels are joined. All welds shall be sound and free from defects. All flux and welding oxides or discoloration must be removed by pickling or grinding since such oxides rust rapidly and would disfigure the appearance of the finished job. Exposed weld beads shall be ground or polished to conform with adjacent areas where this practice is consistent with the original finish.

soldering

Soldering will be permitted only for filling or sealing joints (lockseam, spot welded, riveted, etc.) and must not be depended on for mechanical strength. The area to be soldered shall be cleaned and etched with a suitable flux. The flux shall be confined to this area, and the soldering operation shall follow immediately. The minimum tin content of solder shall be specified, the remainder shall be lead—75% tin and 25% lead is recommended where discoloration is to be avoided; otherwise, 50% tin solder is usually adequate. Immediately after soldering, the surface shall be washed with a solution of washing soda or other neutralizer, followed by a rinsing of clear water.

grinding, polishing, and buffing

Damage to the surface caused by fabrication or handling shall be remedied. When correction is done by grinding, polishing, or buffing to blend with adjacent areas, only clean wheels and compounds, free from iron and iron compounds shall be used.

protection of less corrosion resisting metals

Less corrosion resistant materials shall be protected, insofar as possible, from action of the elements. Joints between stainless steels or between stainless steels and other metals shall, wherever practical, be shielded from weather to prevent service corrosion. Carbon steel shall be protected by at least two shop coats of approved bituminous paints or plastic separators except where welded to the stainless steel. Paints should be allowed to dry before assembly of parts.

protection of the stainless steel surface

To protect against damage from mechanical abuse, paint, plaster, salts, acids, staining from accidental contact with or drip from rusted carbon steel or other dirt, the use of paper, adhesive paper or plastic film coatings is recommended during fabrication, transportation and erection. The protective coating shall be applied and removed following explicitly the instructions of the adhesive manufacturer. Where necessary additional wooden protective barriers shall be placed around the stainless steel after installation.

Extreme care must be taken to protect surface contamination of stainless steel surfaces with iron, carbon steel, or other foreign materials during grinding, polishing, forming, etc. Such frictional impregnation of the stainless surfaces will result in localized corrosion from these less noble particles.

cleaning

If necessary, upon instruction all exposed surfaces of stainless steel shall be washed with water and detergent, or other cleaning agents recommended by the mill.

MicroRold Stainless Steel is distributed by 252 Steel Service Centers

WASHINGTON STEEL CORPORATION

WASHINGTON, PA.

A.I.A. FILE NO. 17-A

AllianceWall®

PORCELAIN ON METAL

VENEER PANELS ■ INSULATED
SANDWICH PANELS ■

A.I.A. FILE NO. 17-A

AllianceWall

Porcelain Enamel on Steel or Aluminum Veneer Panels . . .

Tested for durability. AllianceWall veneer panel production samples have successfully passed the tests for accelerated aging in building panels as contained in ASTM test method D 1037-55T (forest products cycle) originally devised by the U. S. Bureau of Standards.

Panel workability lowers labor costs. Flat panels with light gage metal are easy to drill and saw . . . easy on-site revisions assure flexibility. AllianceWall continuous process manufacturing provides larger panels that go up faster, reduce total joint length, and minimize caulking.

Wide color selection, better delivery. Four blues, three greens, two blue-greens, three yellows, red, orange, light orchid, grey, charcoal grey, tan, deep maroon, three green stipples, grey stipple, charcoal grey stipple, tan stipple, and red stipple. Plain colors optional in gloss or semi-matte finish. AllianceWall maintains a permanent record of colors supplied on every order to assure accurate matching at future dates. Engineered special cartons assure job delivery in perfect condition.

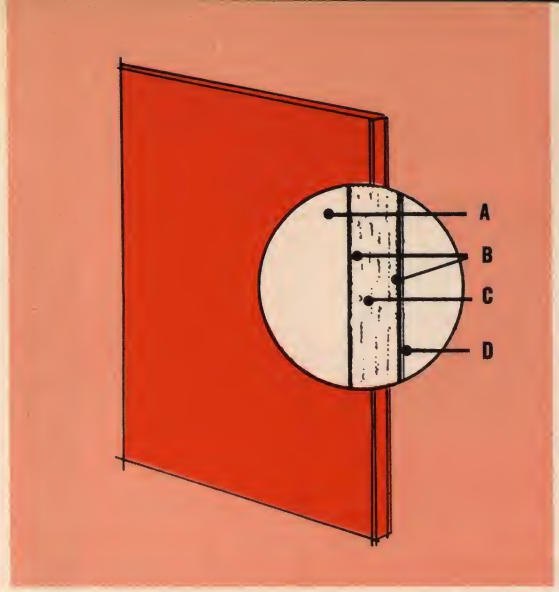
Standard sizes—2, 3, 3½ and 4 foot widths by 6, 8, 10 and 12 foot lengths. **Special sizes** (up to 4 by 12 foot) available on special order.

Exterior panels for new construction—for remodeling.

- Store fronts
- Multi-story buildings
- Motels, apartments

Carefree interior panels.

- Laboratories
- Corridors
- Rest rooms
- Food preparation areas



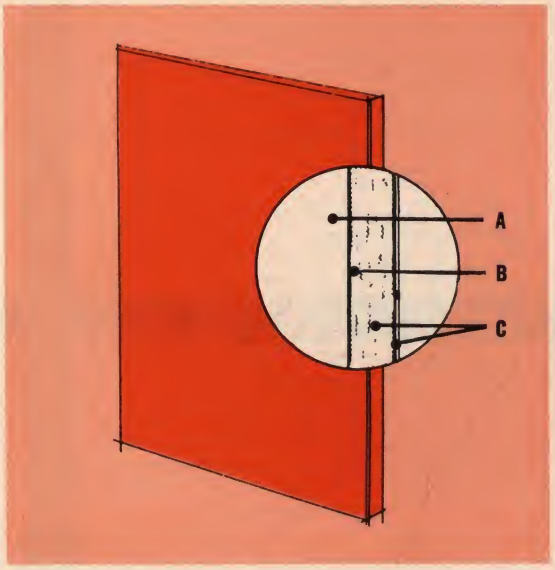
Exterior Panels

A • Porcelain enameled metal skin
Steel: .010 to .015″ thick
Aluminum: .020 to .025″ thick

B • Neoprene base adhesive

C • Core: Nom. ⅛″ or 3/16″ hard board or cement asbestos board

D • Skin: 24 gage galvanized steel or aluminum, or porcelain enameled metal as above



Interior Panels

A • Porcelain enameled metal skin
Steel: .010 to .015″ thick
Aluminum: .020 to .025″ thick

B • Neoprene base adhesive

C • Core: Nom. 3/16″ hardboard, aluminum foil vapor barrier

INSULATED SANDWICH PANELS
Alliance Y. M. C. A.
Alliance, Ohio
Architect: Richard Zuber
Contractor: Paul Kintz



VENEER PANELS FOR EXTERIOR USE
First Federal Savings and Loan Association Building
Uniontown, Pennsylvania
Architect: John Schurko, Pittsburgh
General Contractor: Fairchance Lumber, Pittsburgh



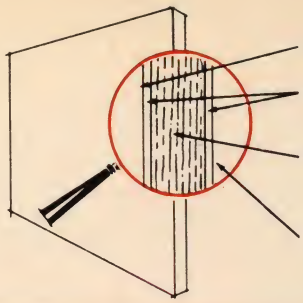
VENEER PANELS FOR INTERIOR USE
Hommel Research Center
Carnegie, Pennsylvania
Architect: Bowers & Barbalat
Contractor: Campbell Co.



AllianceWall

curtain wall
window wall

insulated sandwich panels



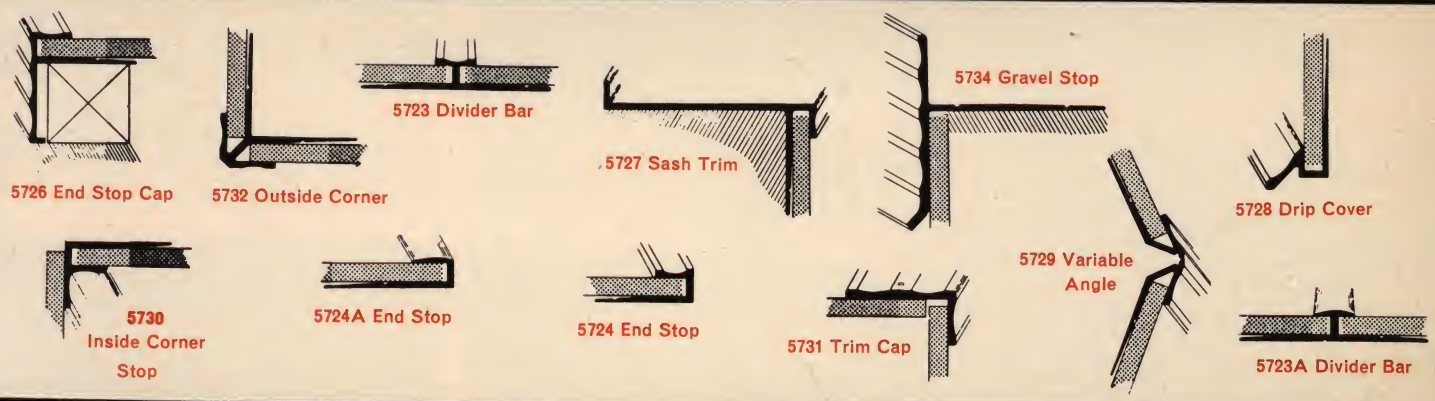
PANEL FEATURES • TECHNICAL DATA

SERIES	EXTERIOR SKIN	STABILIZING CORE MEMBER	CENTRAL CORE MEMBER	INTERIOR SKIN	Nominal Thickness	Approx. lbs. sq. ft. (1)	Approx. "U" value (2)
HC	Porcelain Enamel on steel or Aluminum	1/8" tempered, fire retardant hardboard	Fiber board treated for moisture resistance and protected from rot and vermin	Porcelain enamel on steel or aluminum; mill finish aluminum or galvanized steel	1" 1 1/4" 1 1/2" 1 3/4" 2"	5.3 5.7 6.1 6.5 6.9	.29 .24 .20 .18 .16
AC	Porcelain Enamel on steel or Aluminum	1/8" asbestos cement board rated non-combustible	Fiber board treated for moisture resistance and protected from rot and vermin	Porcelain enamel on steel or aluminum; mill finish aluminum or galvanized steel	3/4" 1 3/16" 1 5/8" 2 1/16"	4.9 5.5 6.2 6.9	.40 .29 .21 .17
HL	Porcelain Enamel on steel or Aluminum	1/8" tempered fire retardant hardboard	Expanded polystyrene (plastic foam) self extinguishing type. A light weight inert material, impervious to moisture, rot and vermin.	Porcelain enamel on steel or aluminum; mill finish aluminum or galvanized steel	1" 1 1/4" 1 1/2" 1 3/4" 2" 2 1/4"	3.3 3.3 3.4 3.4 3.5 3.5	.27 .21 .17 .15 .13 .12
AL	Porcelain Enamel on steel or Aluminum	1/8" asbestos cement board rated non-combustible	Expanded polystyrene (plastic foam) self extinguishing type. A light weight inert material, impervious to moisture, rot and vermin.	Porcelain enamel on steel or aluminum; mill finish aluminum or galvanized steel	1" 1 1/4" 1 1/2" 1 3/4" 2" 2 1/4"	4.1 4.1 4.2 4.2 4.3 4.3	.28 .22 .18 .16 .14 .12

(1) Weights are for steel exterior and interior skin. Deduct 0.5 lbs. per sq. ft. for each aluminum skin used.
(2) Calculated "U" values based on 15 MPH wind on exterior, still air interior.

Continuous process manufacturing permits easy-to-handle lighter gage porcelainized metal. Exterior and interior panel skins are laminated to the type of rigid core material best suited to the designer's needs. In addition to the standard panel combinations shown above, AllianceWall will laminae other combinations to meet specifications of special orders. Insulated sandwich panels are cut to any desired size in the factory (up to 4 ft. wide by 12 ft. long); same color and finish selection as listed under Veneer Panels on Page 2.

Custom AllianceWall Moldings for 3/16" Veneer Panels



CUSTOM MOLDINGS

- In color—porcelain enamel on aluminum to match, contrast or complement AllianceWall panels.
- In buffed and anodized aluminum.
- A complete stock for your convenience—AllianceWall custom moldings to fit nominal 3/16" veneer panels are carried in stock by AllianceWall to fill your requirements. AllianceWall can also be used with any metallic or non-metallic molding that will suit a particular purpose.

INSTALLATION WITH CUSTOM MOLDINGS

1. AllianceWall can be installed on any structurally sound surface, if the surface is uniform and true AllianceWall can be applied directly with custom moldings. Other surfaces should be furred with treated wood strips behind all moldings.
2. Surfaces should be cleaned thoroughly and where necessary coated with a neutralizing bonding medium.
3. Nails, screws, or bolts used in erection shall be corrosion-resistant.
4. If furring is necessary, apply in a fashion to permit complete circulation.
5. Caulking shall be run into all moldings before inserting panels.
6. In direct surface application, panel areas shall be comb spread with adhesive — when erected with furring, lumps of adhesive 2" in diameter shall be applied approximately every square foot behind all panels.

The above is a condensation of AllianceWall's standard installation instructions. A complete installation manual is available at your request.

AllianceWall

specifications

I. GENERAL CONDITIONS

II. INSTRUCTIONS to BIDDERS

A. Definition

B. Description of Areas Covered

C. Work Not Included

D. Manufacturer

Porcelain enameled panels (veneer and/or insulated) shall be manufactured by AllianceWall Division of AllianceWare, Inc., Alliance, Ohio, and shall be produced by AllianceWall continuous coil process.

III. SAMPLES

A. Representative panel samples shall be submitted by the manufacturer to the Architect for inspection and approval.

IV. MATERIALS, FABRICATION and FINISHES

A. Exterior Skin

Base metal shall be coil stock enameling, steel or aluminum, of an alloy suitable for the application of architectural porcelain enamel. The thickness of the base metal shall be .010" to .015" for steel, .020" to .025" for aluminum.

Base metal shall be properly pre-cleaned and treated to insure the maximum adherence of the porcelain enamel to the base metal.

Both surfaces of all base metal shall receive a ground coat of porcelain enamel which shall be fused to the metal by a separate firing operation.

A color cover coat of porcelain enamel shall be applied to one surface of the ground coat and fused by a separate firing operation.

All porcelain enamel "slip" shall be machine applied with automatic spray equipment to insure the maximum finish uniformity.

Firing temperature shall be approximately 1500°F. for steel, 1000°F. for aluminum.

Color shall be ..... (insert color No.) as selected by..... Finish shall be..... (gloss, semi-matte, other specify).

Porcelain enamel shall be acid resistant type Class "A" or better in accordance with PEI current editions of "Tests for Weather Resistance of Architectural Porcelain Enamels."

B. Stabilizing Core Member—Insulated Panel

In order to insure maximum flatness for the exterior skin, a smooth surface core member shall be provided. This member shall be, ... inches thick (hardboard, cement asbestos board, other specify).

C. Central Core Member—Insulated Panel

The insulating core shall be ..... inches thick (fiber board, foamed polystyrene, other specify).

Central Core Member—Veneer Panel

This member shall be nominal (⅛", 3/16" other) ..... thick, (hardboard, cement asbestos board, other).

D. Stabilizing Core Member—Insulated Panel

This member as described under "B" above.

E. Interior Skin—Panel Backing

The interior skin shall be (porcelain enamel on steel or aluminum, as in "A" above, 24 gauge galvanized steel, mill finish aluminum, other specify .....).

F. Adhesive

The adhesive used in lamination shall be a permanently elastic type neoprene or rubber base adhesive. Lamination shall be accomplished using heat and pressure. Neither the adhesive selected nor the method of lamination shall be incompatible with core materials used. Adhesive strength shall be equal or better than the strength of any of the core materials.

V. PERFORMANCE

Panels shall have a nominal finish thickness of ..... Insulated panels shall have an overall heat transmission co-efficient ("U" value) of .....

VI. ERECTION—Insulated Panels

..... insulated panels shall be blocked properly with elastic blocking devices. NOTE: Recommended sealants (Architect's option).

ERECTION—Veneer Panels

Erection shall conform to practices outlined by AllianceWall standard installation procedures.

Storage and protection of material at job site (described).

VII. SHOP DRAWINGS

Shop drawings shall be furnished by the erector.

VIII. CLEANING

Panels shall be delivered with a surface free from foreign matter. Final cleaning shall be done by the erector.

IX. GUARANTEE

All porcelain enamel finishes shall carry the normal guarantee as required under PEI Specifications.



AllianceWall is manufactured by the AllianceWall Division of AllianceWare, Inc., Alliance, Ohio. AllianceWare, Inc. is a pioneer producer of porcelain-on-steel products with more than twenty-four years experience in the porcelain business to back up every product.

In addition to AllianceWall porcelain-on-steel and aluminum veneer and insulated panels, AllianceWall's modern, highly automated, "straight-line" production facilities turn out porcelain-on-steel chalkboards in coil form and coiled porcelain-on-steel.

A full research and development staff is maintained at all times and in addition to developing new products and perfecting methods, AllianceWall continually tests production samples to assure you of highest quality in their products.

for further information . . . Color charts, samples, specifications, etc., write AllianceWall, Dept. SAV, Box 809, Alliance, Ohio

AllianceWall®

AllianceWall Division, AllianceWare, Inc.,
Box 809, Alliance, Ohio

an amp subsidiary

A.I.A. File No. 15-M-1

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ALUMINUM WALL FACINGS



Kawneer Architectural Products

- Aluminum Wall Systems
- Aluminum Entrances
- Aluminum Store Fronts
- Aluminum Sealair Windows
- Wall Facings
- Aluminum Canopies/Louvers

1960
catalog

KAWNEER

KAWNEER WALL FACINGS

aluminum and porcelain on aluminum facing materials and porcelain-on-steel panels

For facing or re-facing exterior or interior, bulkhead or transom panel glazing of building fronts and interior partitions.

Both systems offer:
Wide range of compatible colors—
Variety of texture and scale—
Minimum maintenance lifetime finishes



ZOURITE

Exciting new design possibilities, ZOURITE now available in two distinctive profiles. New selection of compatible colors from the Container Corporation Color Harmony manual. New V-shaped accent fin for face application on either Narrow or Bold face. New design treatments now possible on:
Buildings—face, spandrel or columns
Store Fronts—sign areas, piers or bulkheads
Shopping Centers—sign areas, canopies, fascias or soffits.
Interior Walls—partitions or wainscoating.

For construction details—see pages 4-7.



COLOR WALL

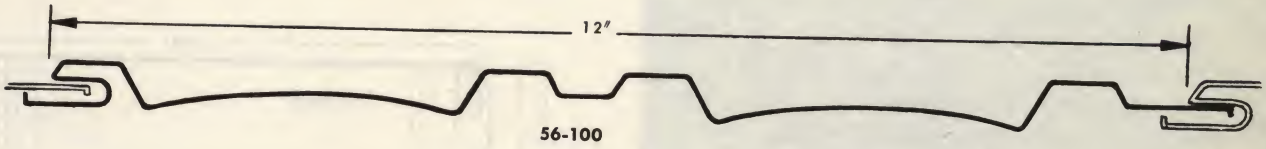
Color Wall, being both versatile and easily adaptable, can be glazed into curtain wall systems and can solve on-the-spot remodeling problems in a hurry. New porcelain veneer panels handle easily and provide:

Design flexibility
Durability
Resistance to elements
Ease of installation
Ease of cleaning
Immediate availability
Installed economy

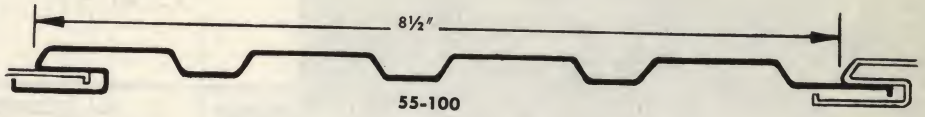
For construction details—see pages 8 and 10.

Copyright 1959 Kawneer Company

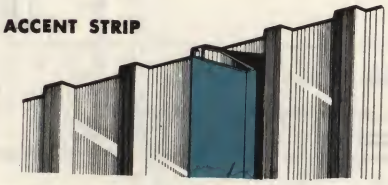
BOLD FACE



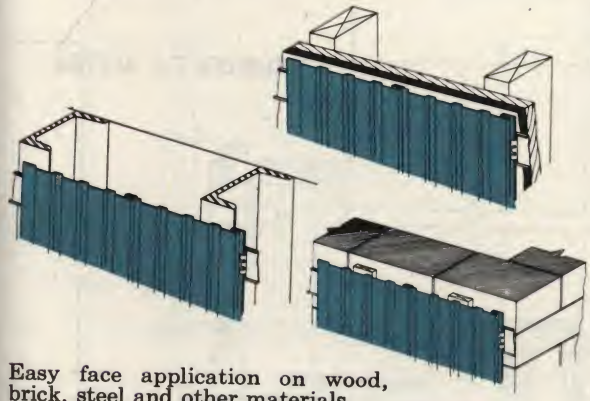
NARROW FACE



ACCENT STRIP



Another new idea for building design. Easily face-applied on the job with clips as shown in the sketch above. Fits perfectly into recessed profile. Comes in 16′ lengths and in the same colors as ZOURITE.



Easy face application on wood, brick, steel and other materials.

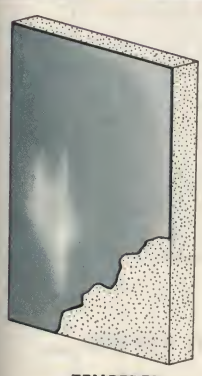
COLORS

Kawneer material on which STOCK COLOR* is available	Container Corp. Color Standard Numbers	Zourite Facing	Zourite Accent Strip	Color Wall Facing
SPRING GREEN	16 ig	x	x	
HARVEST BROWN	6 ng	x	x	
ASH GRAY	5 fe			x
DEEP RED	7 pc	x	x	x
MINT GREEN†	22 gc			x
PASTEL BLUE†	14 gc			x
WINTER WHITE	a	x	x	x
TURQUOISE	18 gc	x	x	x
STRONG BLUE	13½ ng	x	x	x
PEPPER GREEN	21 ne	x	x	x
SUNSET RED	6½ pa	x	x	x
SUNLIGHT YELLOW	2 ga	x	x	x
TEAL	18 ne	x	x	x
VELVET BLACK	p	x	x	x
**ALUMILITE GRAY		x		

**Alumilite Gray not available in BOLD FACE or accent strip.

*Special colors are available on request. Note: Colors will be within commercial tolerances which allow for slight variations in shade.

†Stipple.



TEMPERED HARDBOARD CORE



CEMENT ASBESTOS BOARD CORE

COLOR WALL nominal thicknesses are 3/16″ and ¼ ″. Core materials are tempered hardboard or cement asbestos board. Available panel types are: exterior—porcelain face, galvanized back, double face—porcelain both sides, interior—porcelain face, aluminum foil back.

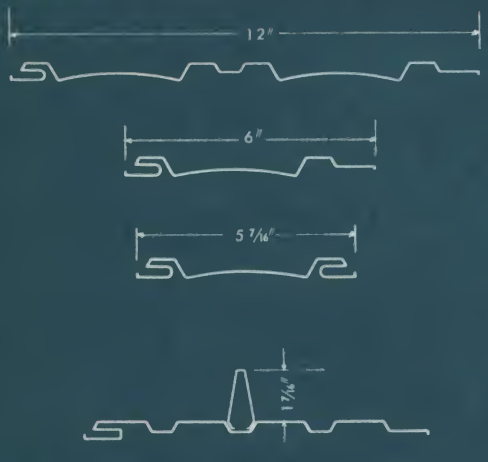
KAWNEER

ZOURITE aluminum facing material

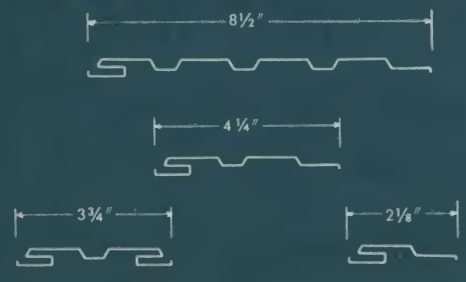
Colorful ZOURITE can be worked in an unlimited number of designs in both narrow and bold face profiles. Trim members are provided for all corner and edge conditions. Matching or contrasting accent strips may be used. Lightweight ZOURITE is easily fastened. Horizontal and vertical applications to masonry, wood or metal are easily made. Stock lengths of 21 feet in alumilite finish and 16 feet in porcelain finish can be cut to fit on the job.

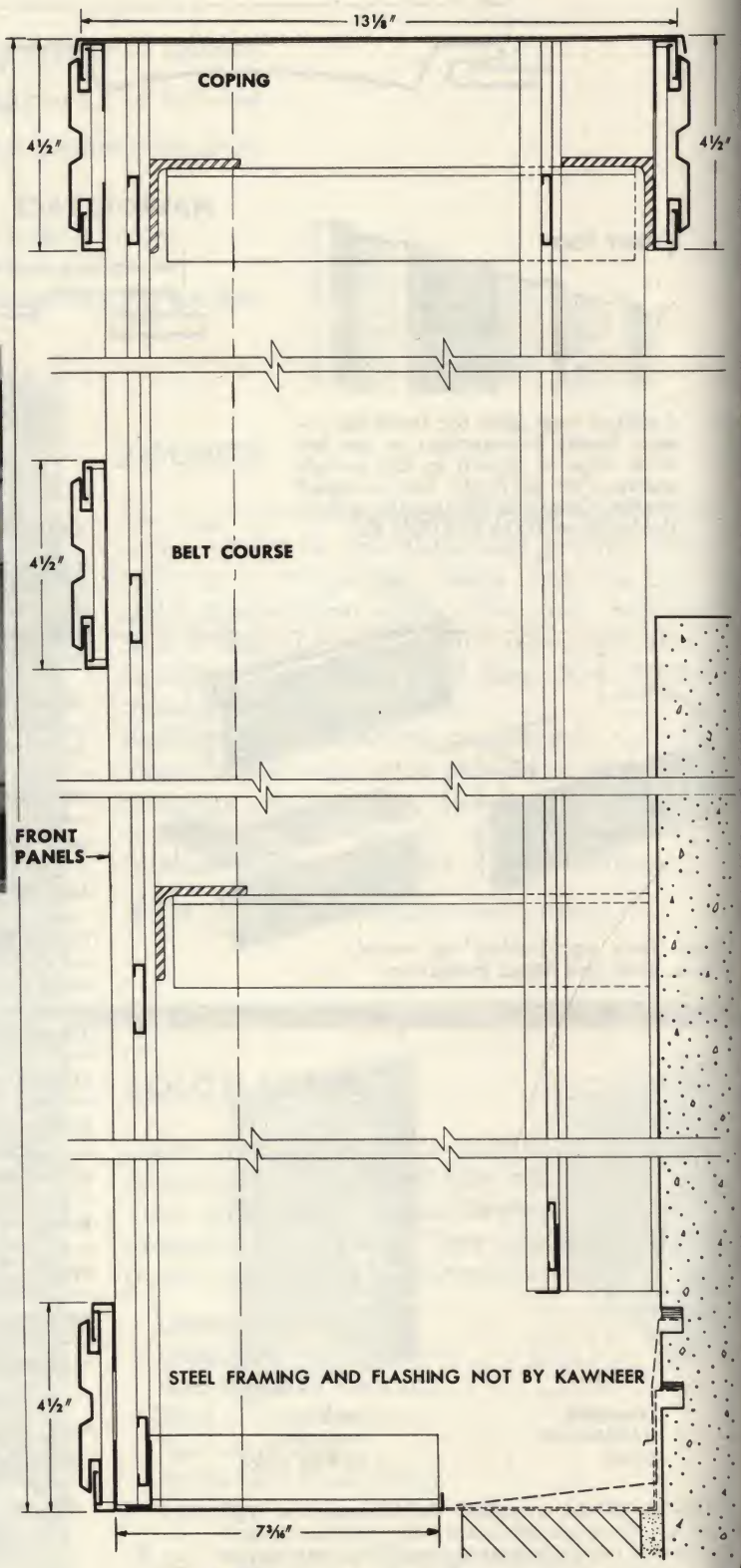


bold face



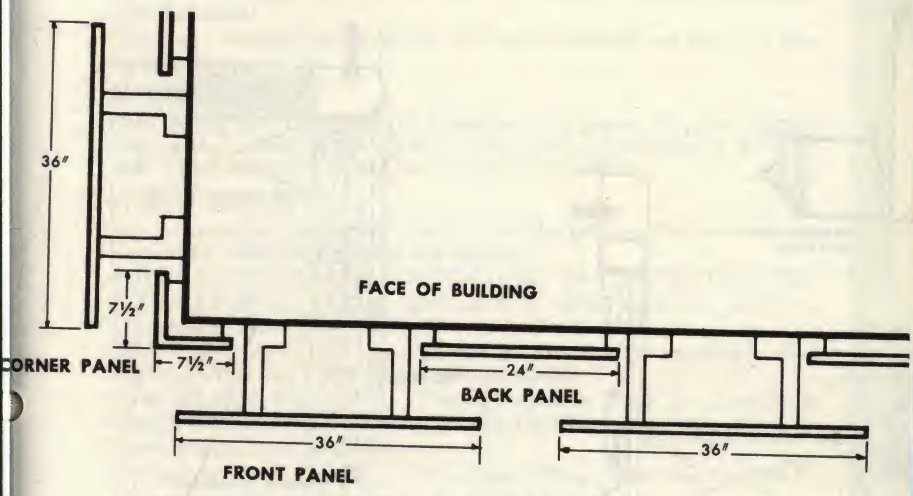
narrow face



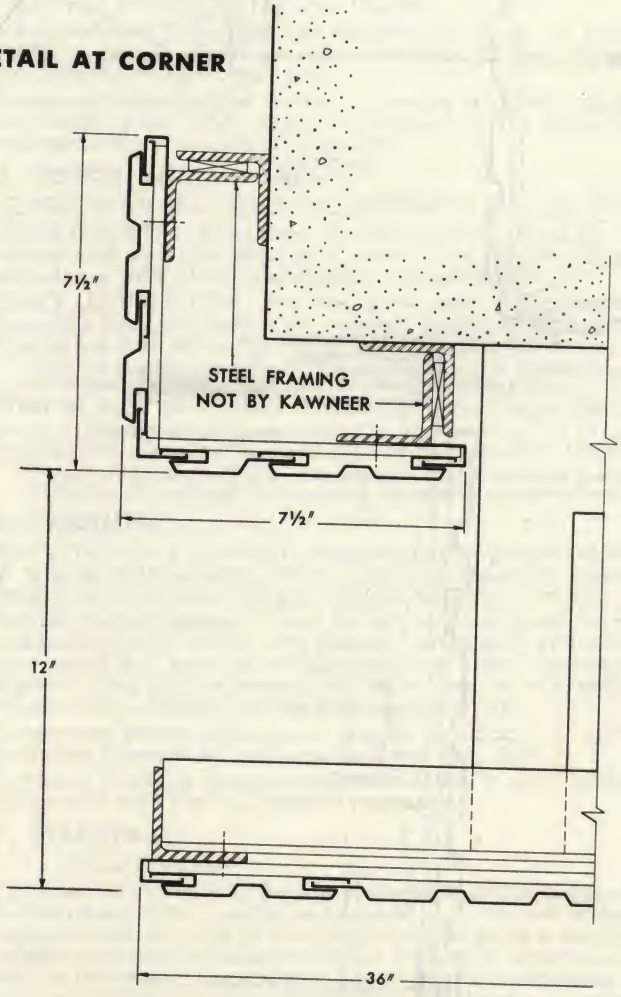


VERTICAL SECTION
Detail—¼ size (3" = 1'—0")

PLAN AT CORNER



DETAIL AT CORNER



DETAIL AT CORNER

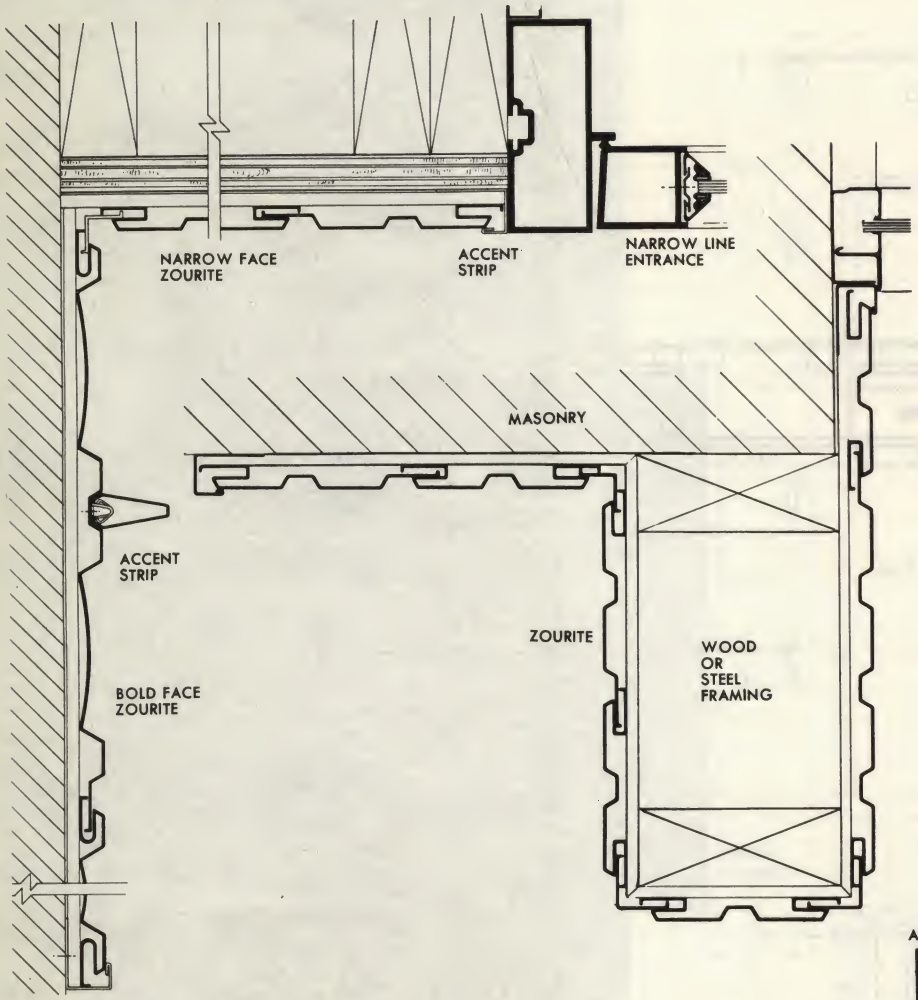


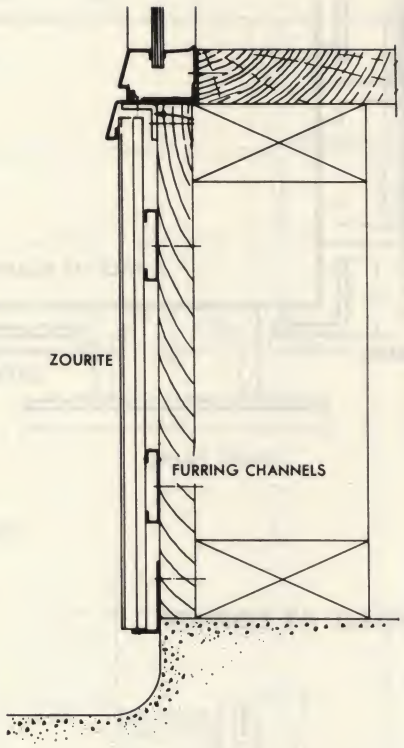




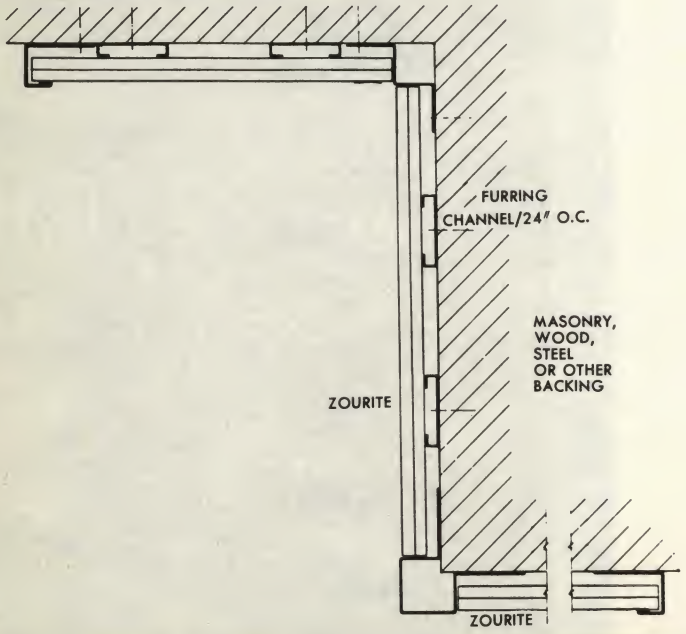
ZOURITE typical details

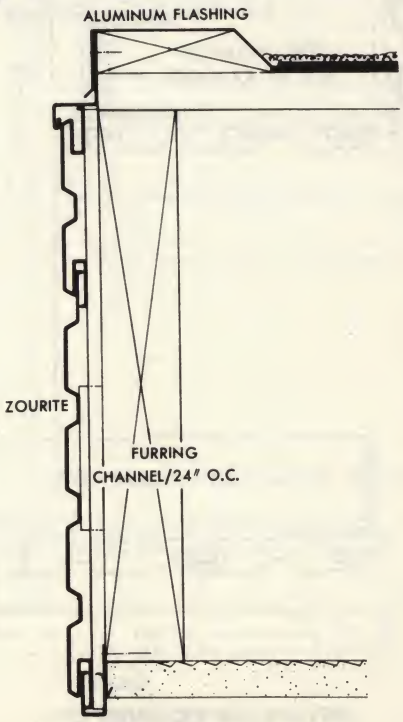
VERTICAL APPLICATIONS





HORIZONTAL APPLICATIONS





ZOURITE SPECIFICATIONS

1. WORK REQUIRED:

Furnish all labor and materials to complete facing work as shown on drawings as hereinafter specified, or both, as follows: Aluminum Facing Materials, Aluminum Trim Moldings, Furring Channels, Clip Anchors.

Blocking, framing or flashing are not included as part of this specification.

2. DESCRIPTION:

Wall facing and trim shall be Kawneer Aluminum Zourite Narrow Face and/or Bold Face Profile. Thickness of aluminum shall be .050″ thick and alumilited and/or porcelain finish.

3. MATERIALS:

Sections shall be formed of aluminum of the proper alloy and temper consistent with the forming operations.

ALTERNATE CLAUSE DEPENDING ON FINISH DESIRED:

ALUMILITED:—Facing sections and trim members shall be Aluminum Alloy 5005-H32.

GRAY ALUMILITE:—Facing sections and trim members shall be Alcoa Anoclad Type 20 Aluminum sheet.

PORCELAIN ENAMEL:—Facing sections shall be Aluminum Alloy 6061 (Federal Specification QQ-A-327).

Furring clips shall be stainless steel.

Furring channels shall be of Aluminum Alloy 5052 (QQ-A-318b-1).

4. CONSTRUCTION AND WORKMANSHIP:

Zourite and component parts listed in this Specification shall be as manufactured by Kawneer Company, Niles, Michigan; Richmond, California; or Toronto, Ontario, Canada.

Joints between facing sections shall be of tongue and groove type design to permit expansion and contraction of the material while maintaining a closed, tight joint.

Facing sections shall be secured to furring channels with stainless steel clips which will permit movement of the facing sections independently of the furring channel.

5. COLOR AND FINISHES:

ALTERNATE CLAUSE DEPENDING ON FINISH DESIRED:

ALUMILITED:—Aluminum facing materials shall be given a caustic etch and then shall be given an anodic oxide treatment in accordance with Alcoa Specification "Alumilite 204 R1".

GRAY ALUMILITE: (Narrow Face only)—Aluminum facing materials shall be given a 60 minute* anodic oxide treatment in accordance with Alcoa Specification "Alumilite 215 R1".

*Note to Specification Writer: This time cycle is very important as the color of the finished product varies with the actual Alumiliting time.

PORCELAIN ENAMEL: Aluminum facing materials shall be given a chemical treatment prior to the application of porcelain enamel. This glass coating shall then be fired* at 970°-1000° F.

*Note to Specification Writer: It is important that the vitreous enamel material be fired to obtain a bond with the metal and produce a durable finish.

6. ERECTION:

BACKING:—All plywood framing sections or porous surfaces shall be treated with a water resistant paint or building paper before installation of Zourite furring channels and facing panels.

Zourite furring channels shall be securely anchored to prepared wall surfaces with screws, or to plugs set in masonry or anchor straps as required, and must be straight and level before Zourite facing is applied. They shall be spaced not more than 24″ o.c. and perpendicular to the direction of the finishing materials.

Tongue and groove facing sections shall be set in place and secured to furring channels by means of stainless steel clips.

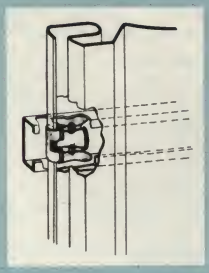
A channel blocking member shall be installed in each furring channel back of each 8½″ section.

7. CLEANING:

(after erection)

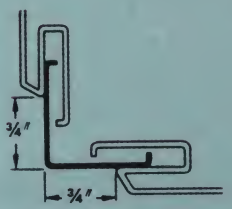
The General Contractor shall be responsible for protection of Zourite from damage by harmful compounds, and removal of protective materials and cleaning of the Zourite, all to be in a complete and finished condition satisfactory to the Architect. Aluminum Zourite shall be thoroughly cleaned with plain water or a petroleum product such as gasoline, kerosene or distillate. No abrasive cleaning agent shall be used. The General Contractor shall be held responsible for damages resulting from the use of other cleaning materials.

THE PATENTED KAWNEER CLIP

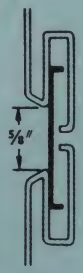


With furring channel in place, a ZOURITE panel is locked in position by bending the fingers of the anchor clip around the edge of the section.

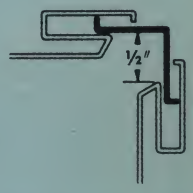
BASIC TRIM MEMBERS



OUTSIDE CORNER TRIM
57-107



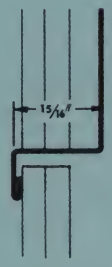
SPACER
57-106



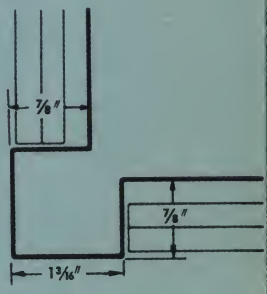
INSIDE CORNER TRIM
57-110



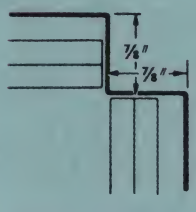
EDGE TRIM
57-112



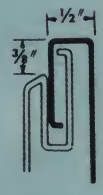
EDGE TRIM
57-113



OUTSIDE CORNER TRIM
57-114



INSIDE CORNER TRIM
57-115



EDGE TRIM
57-116



EDGE TRIM
57-117

KAWNEER

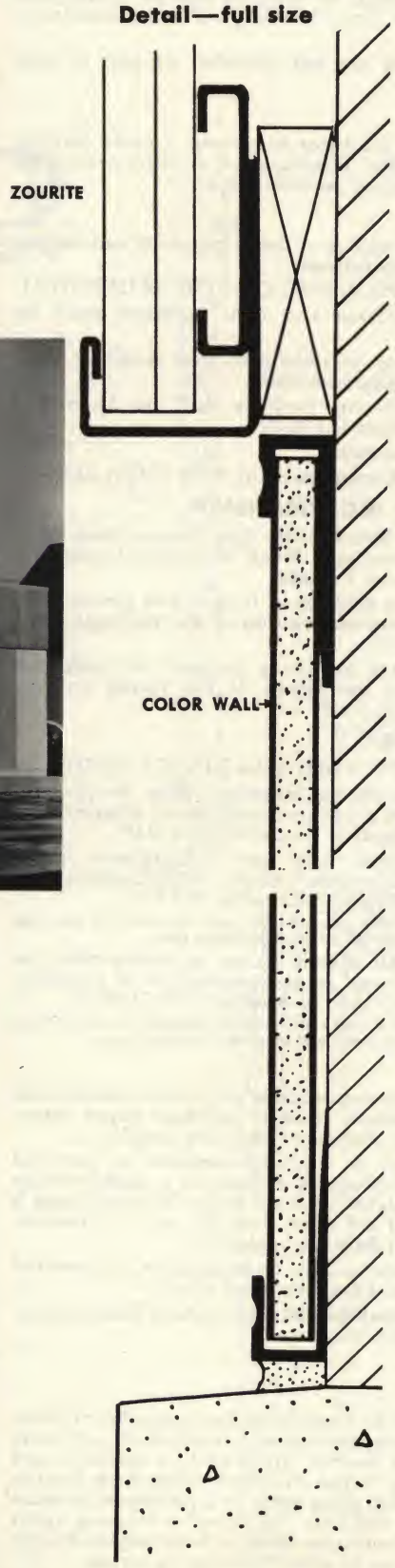
COLOR WALL porcelain-on-steel panels

A complete face-lifting job was accomplished on this bank building by utilizing a Kawneer Narrow Line Entrance, complemented by an attractive array of COLOR WALL. An existing masonry wall was converted, economically and rapidly, from medieval to modern by simply applying these colorful panels and framing around them with aluminum moldings as illustrated in the accompanying details.

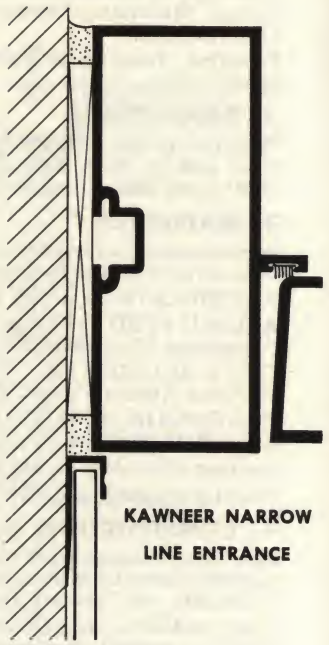




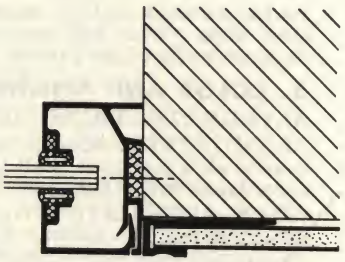
VERTICAL SECTION
Detail—full size



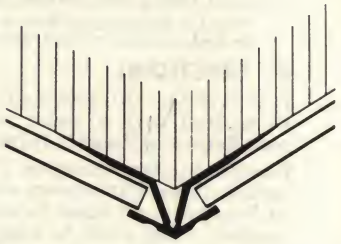
Details—½ size



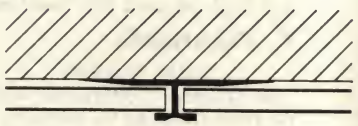
KAWNEER NARROW LINE ENTRANCE



KAWNEER DIRECT-ON-MASONRY 10-450 SASH

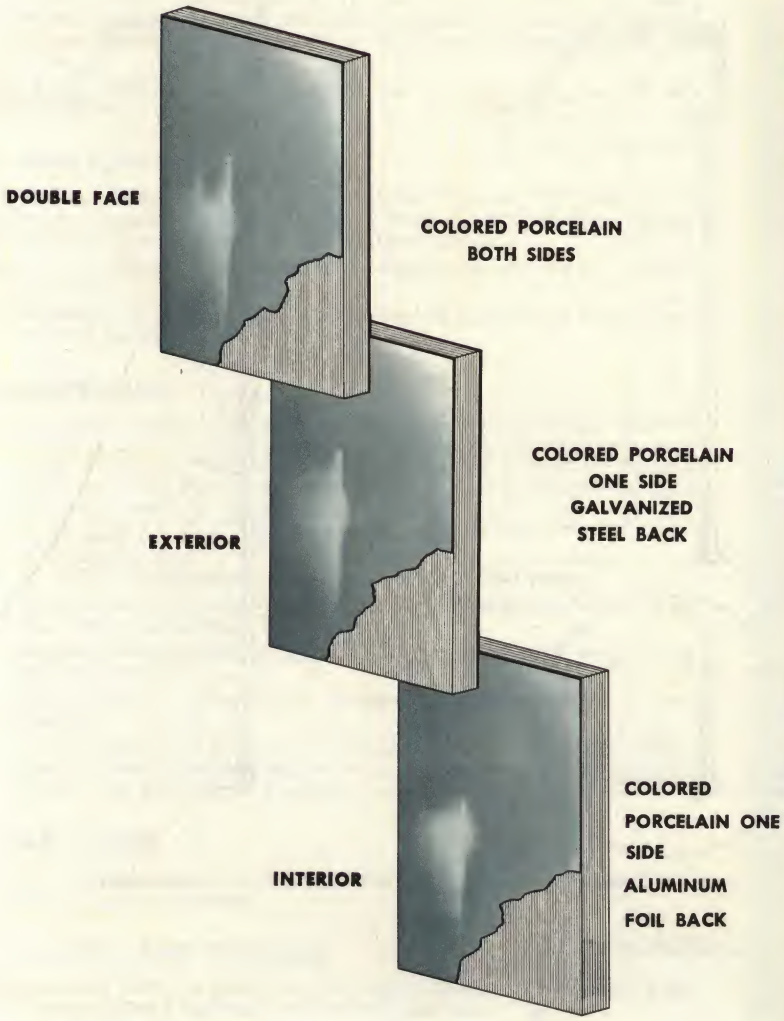


VARIABLE CORNER TRIM



DIVIDER BAR

TYPES OF PANELS



PANEL SELECTION

Nominal Thickness	Core Type	Style	Weight Per Sq. Ft.	Maximum Recommended Sizes Supported on Four Sides
3/16"	HB	DF	2.37	3 x 6
		EXT	2.37	3 x 6
		INT	1.75	3 x 4
3/16"	CAB	DF	2.75	3 x 12
		EXT	2.75	3 x 12
1/4"	HB	DF	3.37	4 x 8
		EXT	3.37	4 x 8
		INT	2.37	4 x 4
1/4"	CAB	DF	4.50	4 x 12
		EXT	4.50	4 x 12

HB Tempered Hardboard Core
CAB Cement Asbestos Board Core
DF Double Face Porcelain Both Sides
EXT Exterior—Porcelain one side, galvanized steel back
INT Interior—Porcelain one side, aluminum foil back



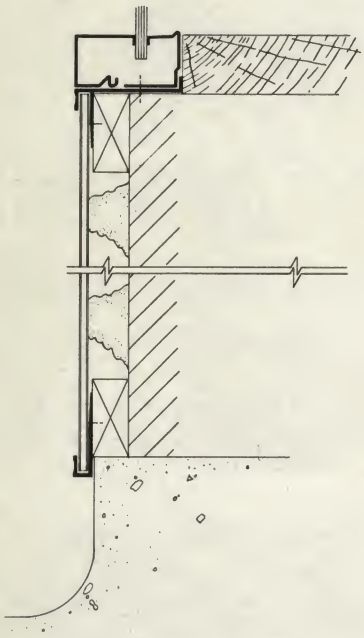
Color Wall is made by laminating porcelain o
steel to a tempered hardboard core under hea
and pressure. Versatile and adaptable, it ca
be glazed into curtain wall systems. Solve on
the-spot remodeling problems in a hurry. Ne
porcelain veneer panels handle easily and las
a lifetime.

- variety of rigid core materials for specif
applications.
- many sizes, colors and finishes availabl
- colors selected from Container Corpo
ation Harmony Manual (see Color Cha
Page 3) 12 warehouse colors. Factor
will match special colors on request.
- fast on-the-job erection.
- can be cut or drilled with power tools.

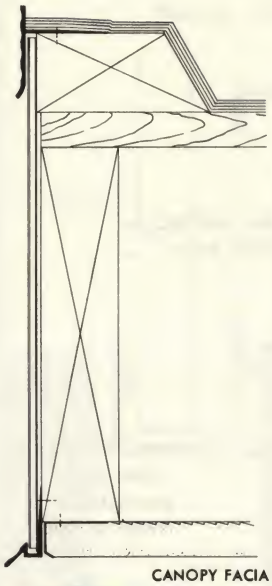
An interior partition application of COLO
WALL has its porcelain finish tested by tw
young artists.



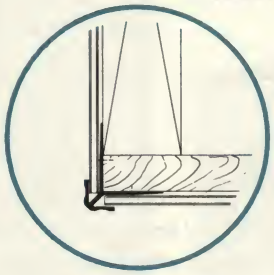
COLOR WALL typical details



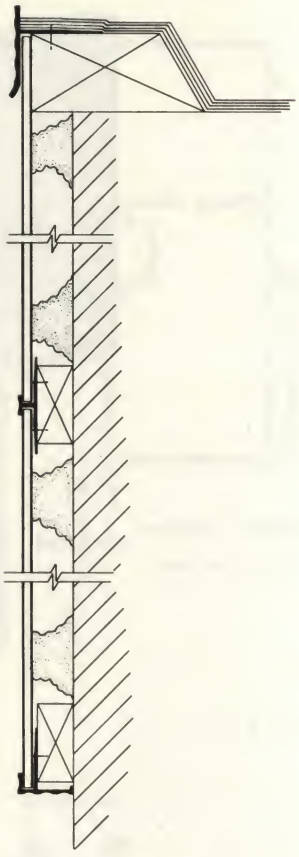
BULKHEAD



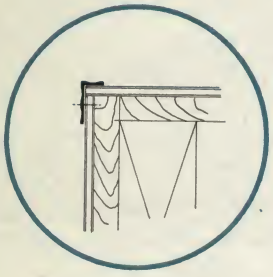
CANOPY FACIA



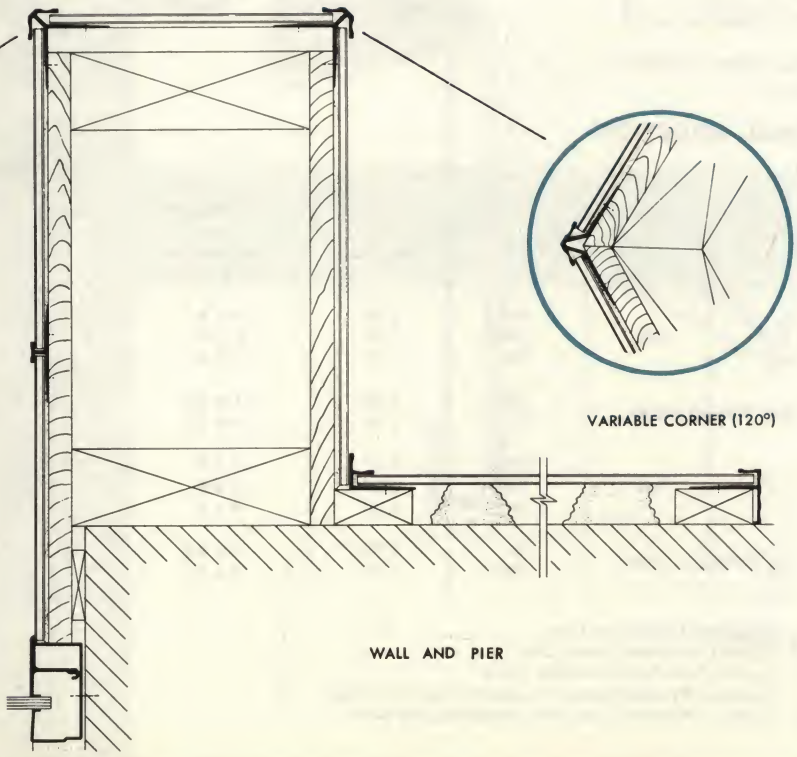
ALTERNATE CORNER



WALL FACING



ALTERNATE CORNER



WALL AND PIER

VARIABLE CORNER (120°)

COLOR WALL SPECIFICATIONS

1. WORK REQUIRED:

Furnish all labor and materials to complete porcelain facing work as shown on drawings as hereinafter specified, or both, as follows: Porcelain Panels, Aluminum Trim Moldings, Furring, Mastic, All Anchors.

Blocking, framing or flashing are not included as part of this specification.

2. DESCRIPTION:

All facing panels shall be Kawneer Color Wall as furnished by the Kawneer Company, Niles, Michigan; Richmond, California, adaptable for facing or nominal 3/16" glazing treatments.

a. Interior type shall have .001 aluminum foil vapor barrier backing.

b. Exterior type shall have .022 paint-lok galvanized steel vapor barrier backing.

3. MATERIALS:

a. Porcelain enamel finish for exterior and interior panels shall be Class A or better and guaranteed by the manufacturer to conform with the "General Specifications for Porcelain Enamel surfaces, Acid Resistant Type," P.E.I. S-102, of the Porcelain Enamel Institute, Washington, D.C.

b. Core shall be chest tempered hardboard.
1.—.125 Exterior
2.—.150-.160 Interior

c. Exterior steel backing shall be galvanized and bonderized steel (Zinc grip, paint grip, galvaneal).

d. Interior .001 aluminum foil moisture barrier shall be impervious non-corrosive.

e. All members of panel to be adhesively bonded under heat and pressure.

f. Panels shall neither delaminate nor show loss of essential structural properties when subjected to accelerated aging tests as defined by the Forest Products Laboratories.

4. MOLDINGS:

Interior-Exterior moldings shall be aluminum, buffed and anodized, or porcelain on aluminum.

5. COLORS AND FINISHES:

Exterior and Interior shall be a semi-gloss finish, and samples shall receive architect's approval before installation.

6. ERECTION:

a. **Interiors or exteriors over plywood or sheathing:** Color Wall facing panels shall be installed over suitably smooth, clean wall area with edges supported by Color Wall aluminum moldings as specified, and adhesively bonded with self-curing Armstrong Adhesive No. F-1440, or equal, comb-spread over entire panel area.

b. **Exterior application over rough Masonry:** Rough Masonry shall be furred out with 1" x 3" treated wood furring strips and installed vertically wherever possible to allow for circulation of air behind the panel. All moldings shall be caulked.

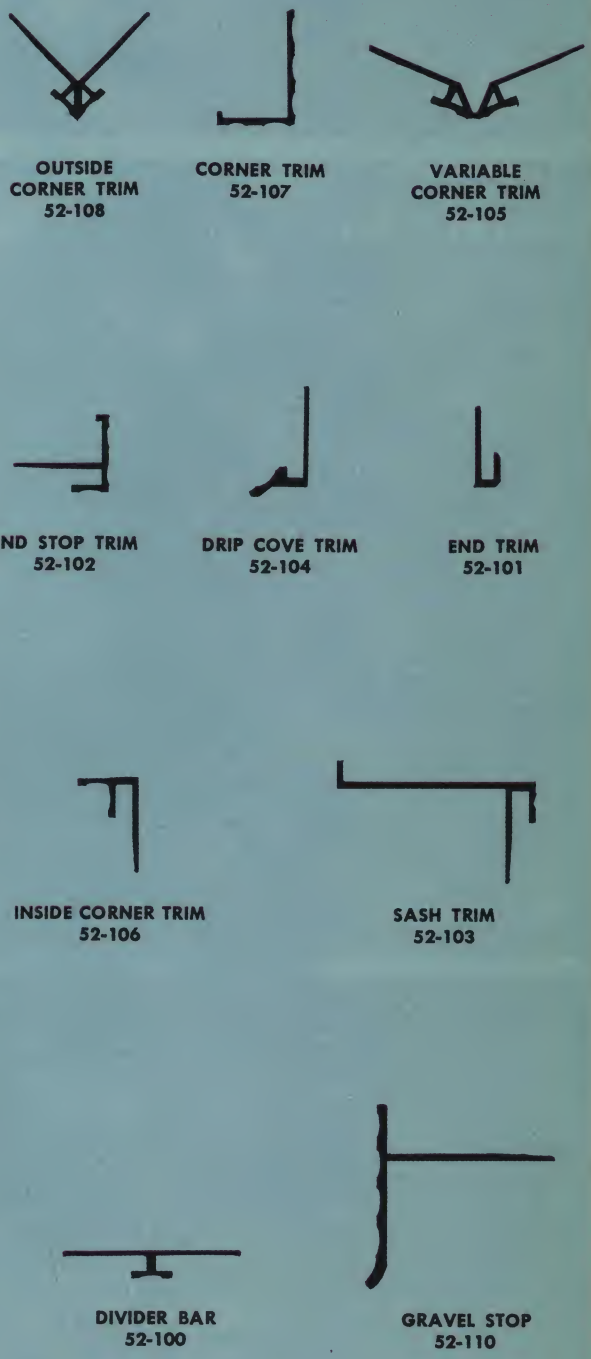
c. **Interior applications:** Caulking of molding channel areas shall be required i.e., tub cover, sink backsplash, etc.

7. CLEANING:

(after erection)

The General Contractor shall be responsible for protection of exposed portions of Color Wall from damage, removal of protective materials, and cleaning of the Color Wall, all to be in a complete and finished condition satisfactory to the architect. Color Wall shall be thoroughly cleaned with plain water or a petroleum product, such as gasoline, kerosene or distillate. No abrasive cleaning agent shall be used. The General Contractor shall be held responsible for damages resulting from the use of other cleaning materials.

BASIC TRIM MEMBERS



ALUMINUM WALL FACINGS

DISTRICT OFFICES

*Atlanta, Georgia
530 Permalume Place, N.W.
Sycamore 4-9501

*Boston, Massachusetts
255 Corporation Way,
Medford, Mass.
Export 5-7070

***Brooklyn 6, New York
345 Ten Eyck Street
Hyacinth 7-4880

Chicago 30, Illinois
4532 North Elston Avenue
Spring 7-6969

Cincinnati 36, Ohio
7565 Kenwood Road
Rm. 107
Kenwood Center Bldg.
Twtwd 1-8122

*Cleveland 11, Ohio
4791 W. 105th Street
Orchard 1-1158

*Dallas 35, Texas
5615 Directors Row
Fleetwood 7-4541

Kansas City 15, Missouri
No. 20 On-the-Mall
Prairie Village
Endicott 2-2318

*Los Angeles 22, California
3000 Supply Avenue
Raymond 3-9171

***Miami 47, Florida
7651 N.W. 25th Avenue
Oxford 1-9131

New York 36, New York
Rm. 2346, 11 W. 42nd St.
Longacre 4-8476

Philadelphia, Pennsylvania
1020 Main St., Darby, Pa.
Ludlow 3-8600

**Richmond, California
600 Parr Blvd.
Beacon 2-1821

Seattle 99, Washington
420 First Avenue, West
Atwater 4-0363

**Toronto, Ontario, Canada
1460 Don Mills Rd.,
Don Mills, Ont.
Hickory 4-1101

**Niles, Michigan:
Cynthiana, Kentucky

*Combined Sales Office and Warehouse
**Combined Sales Office and Factory
***Warehouse Only

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Other Architectural Products

For other architectural products, see these Kawneer catalogs in Sweet's Architectural File:

Aluminum Wall Systems
Section 3a/Ka

Aluminum Entrances
Section 16a/Kaw

Aluminum Sealair Windows
Section 17a/Kaw

Aluminum Canopies/Louvers
Section 19e/Ka

Aluminum Store Fronts
Section 21/Kaw

Litho in U.S.A. Form No. 60031

Kawneer
General Offices
NILES, MICHIGAN
ARCHITECTURAL METAL PRODUCTS

Factories in:

NILES, MICHIGAN
RICHMOND, CALIFORNIA
CYNTHIANA, KENTUCKY
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A. I. A. FILE NO. 27-A

MIRAWAL

THIN VENEER TYPE BUILDING PANELS IN . . .

PORCELAIN ENAMEL • ALUMINUM • STAINLESS STEEL

CLASS "A" ACID RESISTANT PORCELAIN ENAMEL

MIRAWAL can be cut at job site by Kett Portable Power Saw





- INTERIOR
- EXTERIOR
- FLAT
- ENDURING COLOR
- LOW COST
- LONG LIFE
- SIMPLE TO ERECT
- LIGHT WEIGHT
- SIMPLE TO MAINTAIN

See MIRAWAL'S Complete Catalog in Section 3c/Mi Sweet's Architectural File

MIRAWAL BIRDSBORO, PENNA. PHONE JUNIPER 2-2011

MIRAWAL THIN VENEER BUILDING PANELS

This is the famous *original* MIRAWAL panel which revolutionized the use of porcelain-on-steel architecturally. The acceptance of porcelain enamel in construction was accelerated by Mirawal's economy, ease of handling, and simplicity. This panel has been used in great abundance throughout the nation on store fronts, telephone booths, gasoline service stations, and in interiors where appearance, cleanliness, and durability are required.

Mirawal is produced in thicknesses of 3/16", 1/4", and 5/16", in standard widths of 24", 36", 42" and 48" and in stock lengths of 6, 8, 10, and 12 feet. Special lengths above 12 feet can be produced to special order after consultation with the user. Mirawal is easily cut on the *job-site* by one man using an electrical Kett Panel Master Saw, Model KS-3AM, available from us on order.

Four basic types are produced----

INTERIOR—Miracoil applied to one face of tempered hardboard, with vapor seal of .001 aluminum foil on the reverse side. Also available on cement-asbestos board with vapor seal backing.

EXTERIOR—Same as interior, except that in lieu of vapor seal described, reverse side is galvannealed steel sheet.

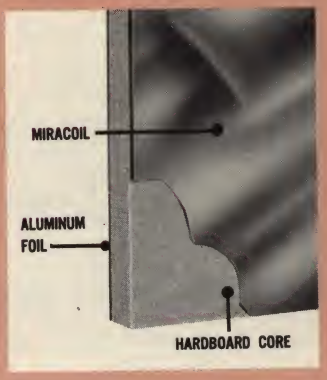
DOUBLE-FACED—Same as exterior, except that the reverse side is also Miracoil. Used for store front spandrels and interior partitions, where both sides are visible or subjected to exposure.

MIRAFLEX—a flexible material consisting of Miracoil laminated to rubber impregnated corkboard. No inner face or vapor seal is required. This material is available only in 1/8" thickness and can be curved around surfaces or in framing to a minimum radius of six inches. Used on cornices, copings, radius corners, etc. in either convex or concave form.

All cement-asbestos board used as core material in Mirawal panels is made to our own rigid specifications, equalling or exceeding Federal Specification SS-S-283A, Class F. Tempered hardboard used as core is also to our specifications, equalling or exceeding Federal Specification LLL-H-35.

Member Porcelain Enamel Institute

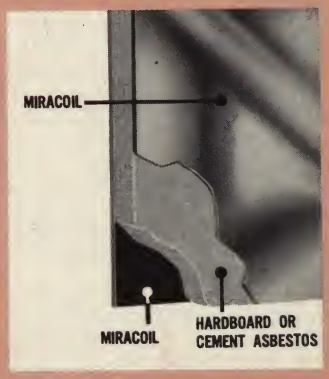
INTERIOR—



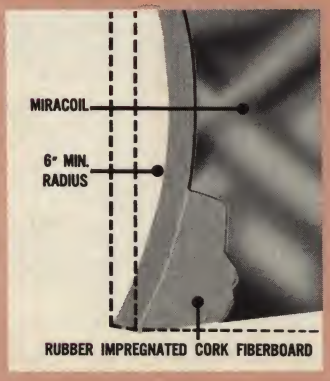
EXTERIOR—

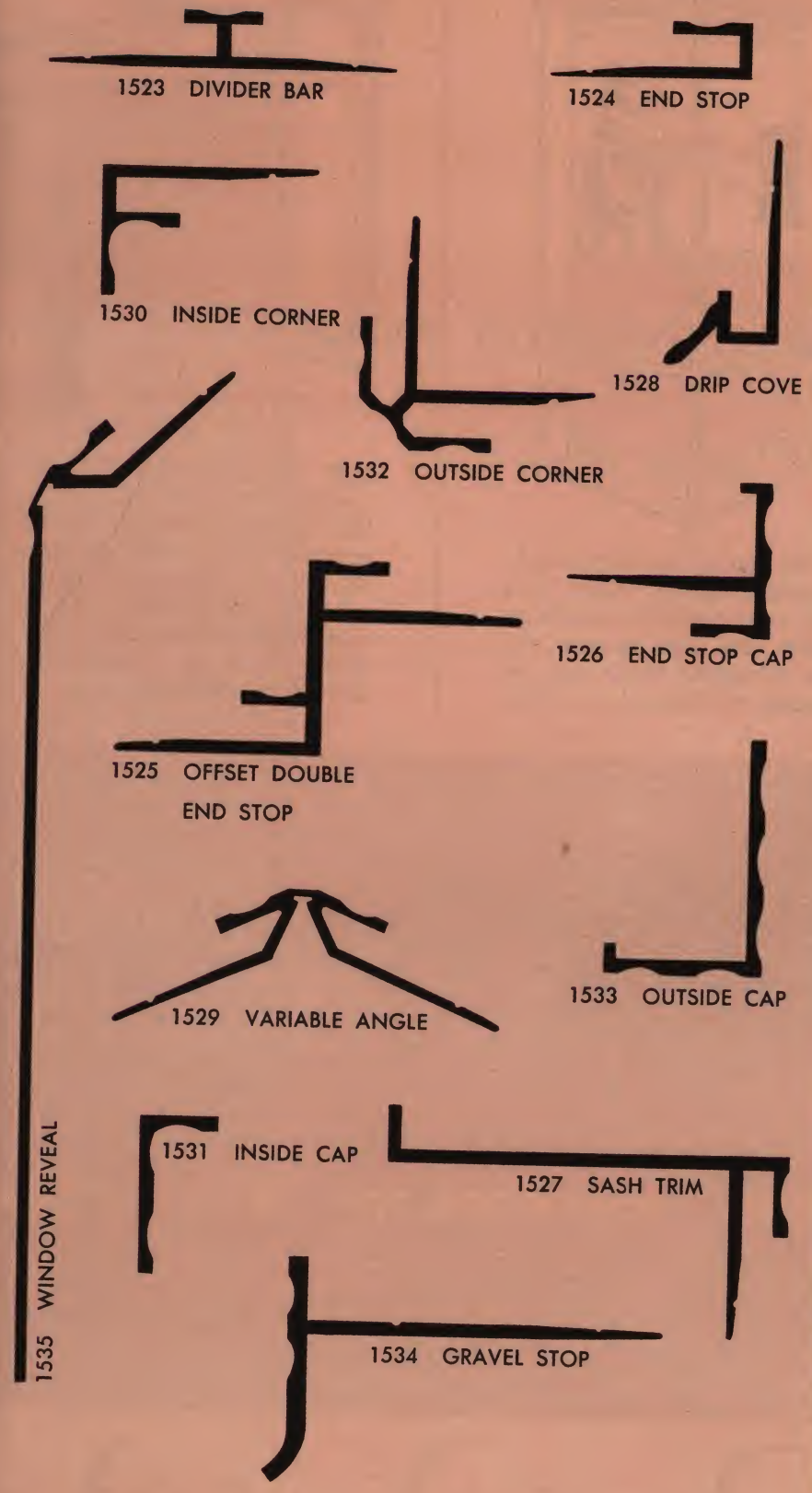


DOUBLE-FACED—



MIRAFLEX—





Member Porcelain Enamel Institute

Mirawal thin panels, 3/16" in thickness, can be erected quickly, economically and simply, by the use of standard molding sections for both interior and exterior applications. Sections shown in the illustration are "full scale" for direct reference by draftsmen and engineers.

Miramold moldings have long been available in a fine buffed and anodized finish, as standard. NOW, however, these same moldings are available *also in a porcelain enamel finish to match the adjacent panel area in color.*

Also available from Mirawal for trouble-free erection are the following tools and supplies, especially designed for the Mirawal erector:

MIRALASTIC — aluminum pigmented caulking

MIRAMASTIC — (summer or winter grade), for "spotting in" wall cavity behind panels for adherence and support.

MIRAKOTE — wall primer to seal back-up wall surface behind veneers

MIRADHESIVE—for use when adhering panels directly to back-up wall for approved interiors or exteriors

MIRAMASTIC SCOOP — electrically heated to handle Miramastic in proper amounts and consistency

MIRADHESIVE TROWEL—serrated edges for combing on Miradhesive

MIRALASTIC CAULKING GUN

KETT PANEL MASTER ELECTRIC SAW

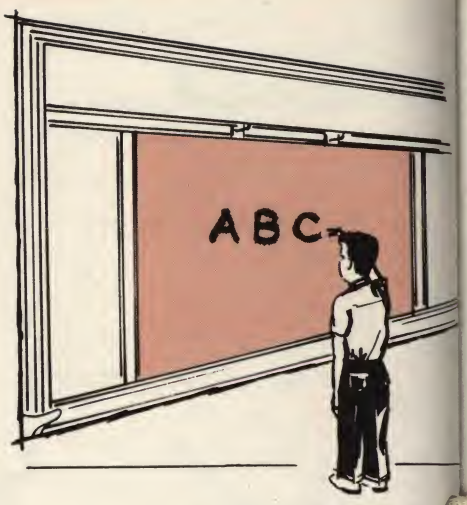
RUST-PROOF FASTENERS, screws, etc.



Mirawal warrants panels against delamination, and porcelain enamel against crazing, cracking, or color fading for a period of *ten years*. Porcelain enamel is also warranted to be Class "A" acid-resistant under specifications of Porcelain Enamel Institute. See Mirawal's terms of sale.



Double-faced Mirawal panels in porcelain enamel have long been used in outdoor telephone booths. See your nearest outdoor telephone booth for one example of Mirawal in action.



Loxit Systems, Inc., 1217 W. Washington Blvd., Chicago 7, Illinois distributes Mirawal's production of porcelain-on-steel chalkboard. This top quality specialty, for schools, colleges and institutions is used exclusively by Loxit in producing their best chalkboard line.

MIRAWAL DIVISION OF
BIRDSBORO STEEL FOUNDRY & MACHINE COMPANY

Mirawal GENUINE PORCELAIN ON-STEEL-FACING

BIRDSBORO, PENNSYLVANIA PHONE JUNIPER 2-2011

Principal manufacturing plant . . . . . Kernersville, N. C., U.S.A.

Inquiries may be directed to one of the following sales, manufacturing and laminating plants near you.

MIRAWAL PACIFIC, INC.
2827 Union Street
Oakland 8, California
TWinoaks 3-9225

MIRAWAL DE MEXICO
La Cantabra
Guatemala Ave. No. 8
Mexico 1, D.F.
Tel 22-03-20

MIRAWAL CO. OF CANADA
P. O. Box 308
Maple, Ontario, Canada
Phone—Maple 178

MIRAWAL SOUTHWEST
Div. of Ward & Capers
2527 McKinney Ave.
Dallas 1, Texas
RIverside 7-9129

Agents and distributors nation-wide . . . also foreign licensees

1960 A.I.A. FILE NO. 15

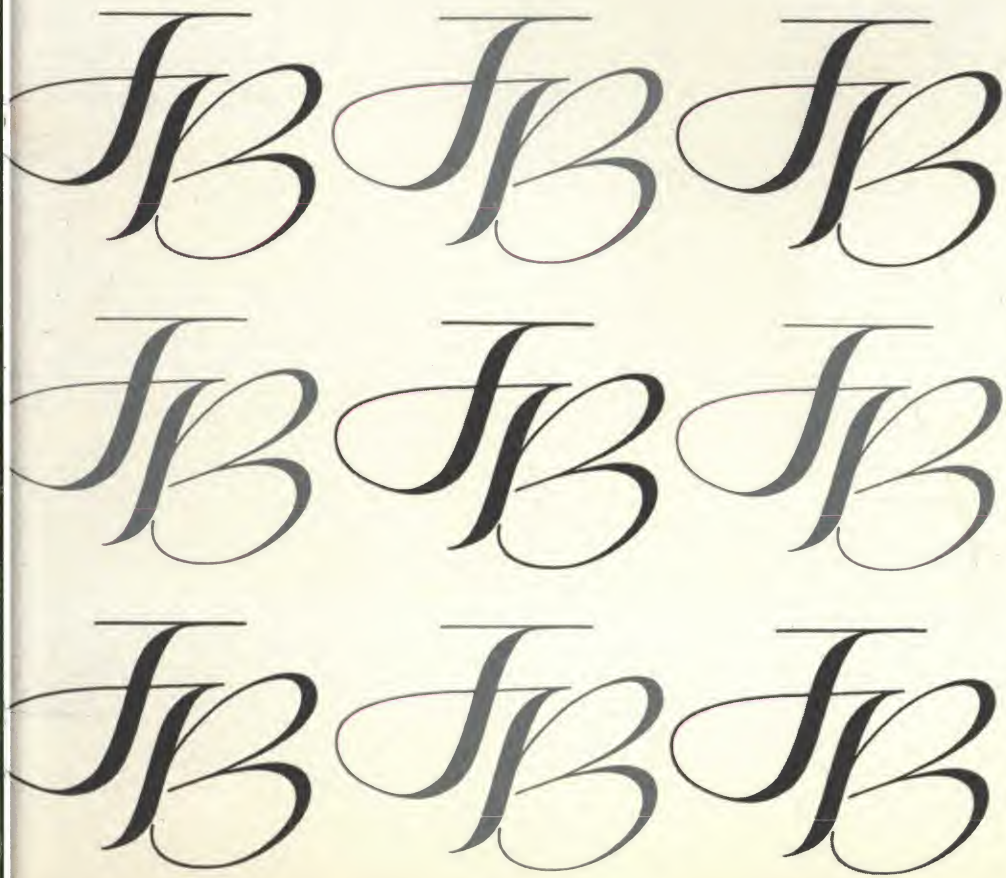
1960 A.I.A. FILE NO. 15

stock components for the fabrication and assembly of architectural metal work

JULIUS BLUM AND COMPANY, INC.

Carlstadt, New Jersey
phone: GEneva 8-4600
Philadelphia phone:
MArket 7-7596
New York phone:
OXford 5-2236

for complete information, write for catalog no. 8



NOTE:

Page 2: Carlstadt Aluminum Railing Components. Simple and rugged. Have ample strength for schools, public buildings, etc.

Page 3: Colorail Plastic Handrails. Colorful, easy to fabricate, permanent.

Page 8: New Tubing Sizes: 2″ x 10″ and 2″ x 12″ for stair stringers.

Plus: Stainless steel railing components, a bigger line of architectural metal items.

Julius Blum & Co., Inc.
Fifty Years
1910-1960

1960 A.I.A. FILE NO. 15



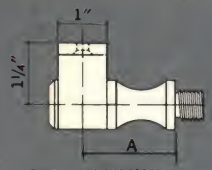
CARLSTADT RAILING SYSTEM*

Scale 3" = 1'-0"
Except as noted

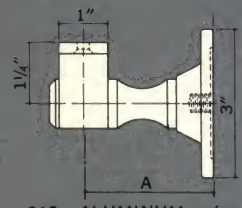
CARLSTADT handrail components are designed for ease of installation, attractive appearance, durability, and low maintenance and are suitable for alumiliting.

All items in stock for immediate shipment

CARLSTADT ADJUSTABLE HANDRAIL BRACKETS

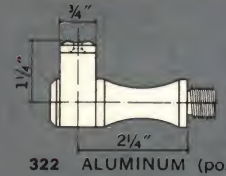


			A
311	ALUMINUM	(post mounting)	1⅞"
312	ALUMINUM	(post mounting)	2⅜"

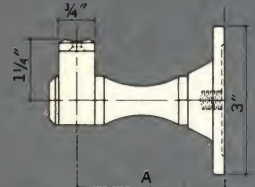


			A
313	ALUMINUM	(wall mounting)	2⅝"
314	ALUMINUM	(wall mounting)	3⅛"

PIPE RAIL BRACKETS

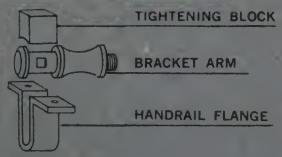


322 ALUMINUM (post mounting)



			A
307	ALUMINUM	(wall mounting)	2½"
308	ALUMINUM	(wall mounting)	3"

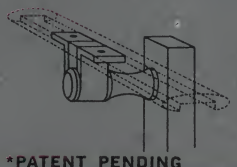
BRACKET ASSEMBLY



Three Basic Components



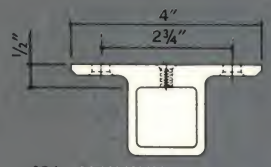
Easy to install: Recess of bracket arm has flat sides. Wrench can be applied here without marring finished surfaces.



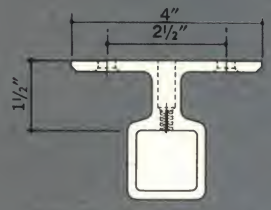
Remains tight: Pressure of tightening block prevents looseness and rattling.

*PATENT PENDING

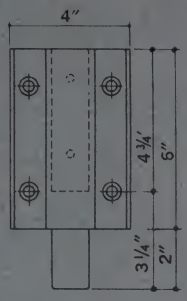
FACIA FLANGES



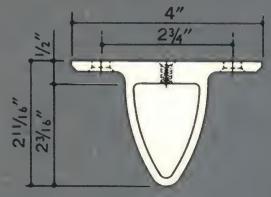
421 ALUMINUM



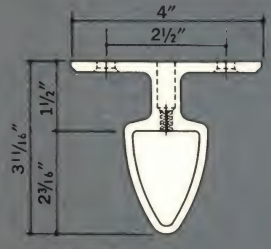
422 ALUMINUM



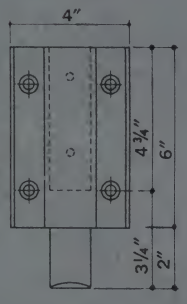
For Post No. **423**
Not to scale



425 ALUMINUM



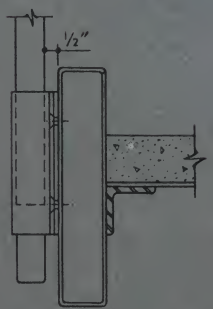
426 ALUMINUM



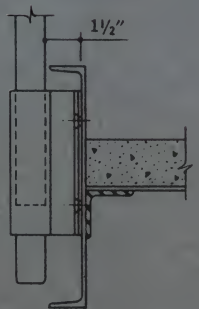
For Post No. **427**
Not to scale

FLANGE DETAILS

Scale 1½" = 1'-0"



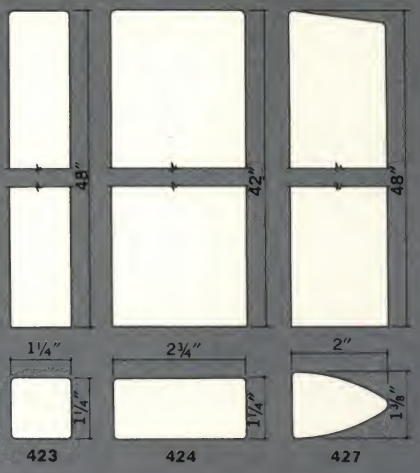
FACIA FLANGE No. 421 or 425 used with box stringer



FACIA FLANGE No. 422 or 426 used with channel stringer

SOLID RAILING POSTS

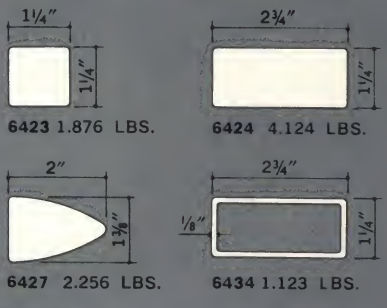
Aluminum – Upper end finished, no cap needed



423 **424** **427**

BAR STOCK FOR RAILING POSTS

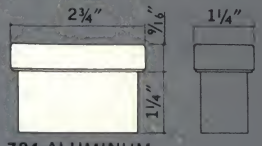
ALUMINUM – 20' LENGTHS



6423 1.876 LBS. **6424** 4.124 LBS.

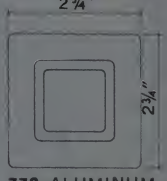
6427 2.256 LBS. **6434** 1.123 LBS.

END CAP For Post No. 6434

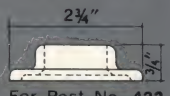


784 ALUMINUM

COVER FLANGES



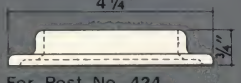
773 ALUMINUM



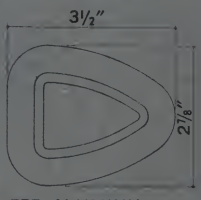
For Post No. **423**



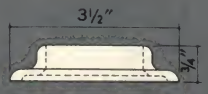
774 ALUMINUM



For Post No. **424**



777 ALUMINUM

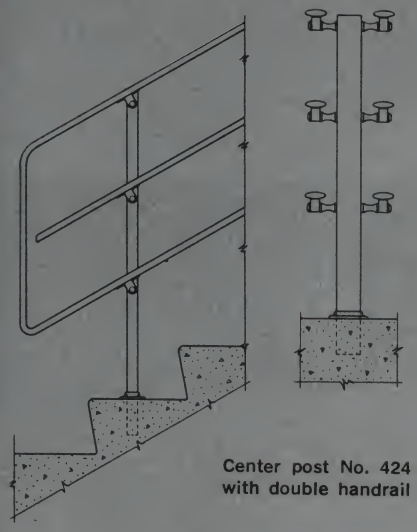


For Post No. **427**

©1959 JULIUS BLUM AND CO., INC.

CENTER RAILING

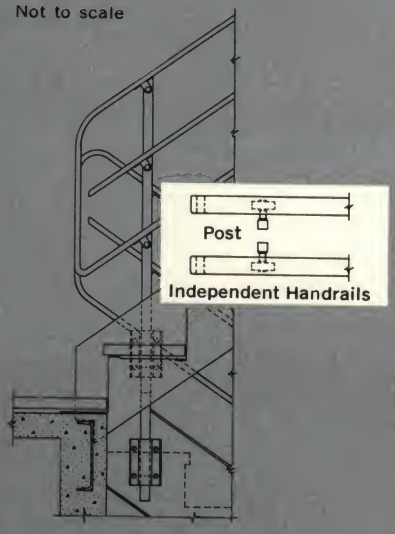
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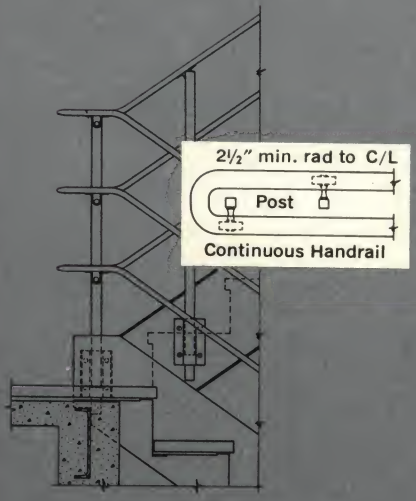


Center post No. 424 with double handrail

LANDINGS

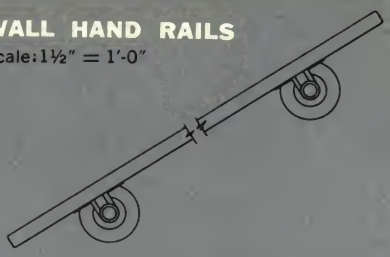
Not to scale





WALL HAND RAILS

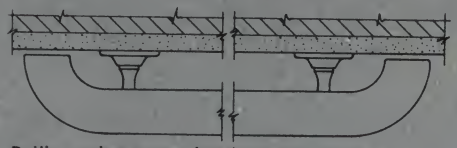
Scale: 1½" = 1'-0"



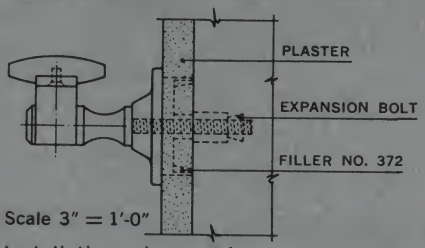


Railing 6434 used with cap 784

Solid moulding with square end

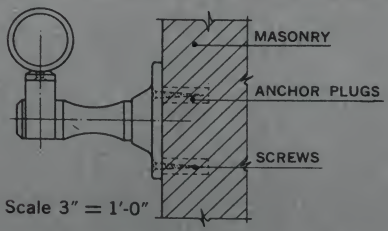


Railing using corner bends as wall returns.



Scale 3" = 1'-0"

Installation using cast iron filler and expansion bolt (For Filler see page 5)

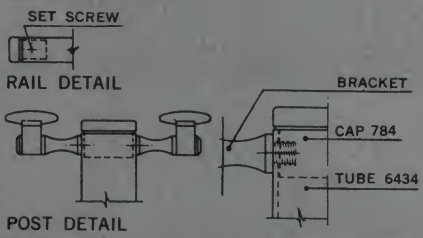


Scale 3" = 1'-0"

Installation using three flat head wood screws.

END CAP

Scale: 1½" = 1'-0"

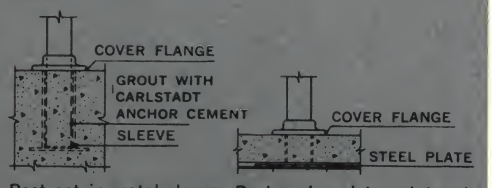


POST DETAIL

End Cap 784 may be used to terminate railing or post 6434. Cap is provided with solid plug so as to give handrail brackets firm support.

POST ANCHORING

Scale 1½" = 1'-0"



Post set in metal sleeve in masonry and anchored with Carlstadt Anchor Cement.

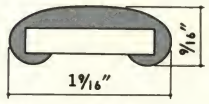
Post anchored to sub-tread or platform.

CARLSTADT COLORAIL

THE COLORFUL PLASTIC HANDRAIL, EASY TO FABRICATE – NEEDS NO MAINTENANCE

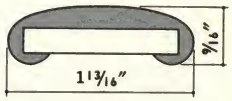
Carlstadt Colorail is supplied in 100 foot coils, or cut to specified lengths. All the illustrated sizes and shapes are available for immediate delivery. Color-fast Colorail in black, gray, red and gold is carried in stock. Additional colors will be made available as the demand arises. Colorail can be fabricated and installed without special tools.

When heated, it becomes as pliable as rubber. After cooling, it hugs firmly the top bar of the railing.



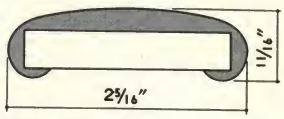
6701 BLACK
6702 GRAY
6703 RED
6704 GOLD

for 1¼" x ¼" flat bar



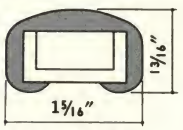
6711 BLACK
6712 GRAY
6713 RED
6714 GOLD

for 1½" x ¼" flat bar



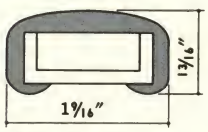
6721 BLACK
6722 GREY
6723 RED
6724 GOLD

for 2" x ⅜" flat bar



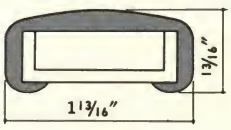
6731 BLACK
6732 GRAY
6733 RED
6734 GOLD

for 1" x ½" channel



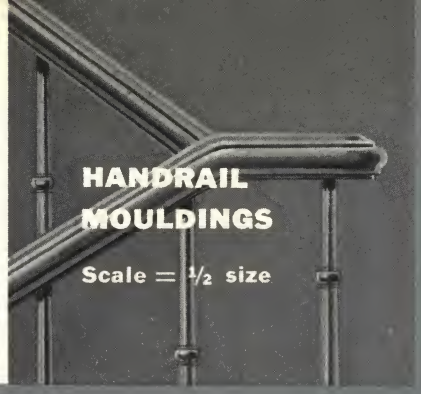
6741 BLACK
6742 GRAY
6743 RED
6744 GOLD

for 1¼" x ½" channel



6751 BLACK
6752 GRAY
6753 RED
6754 GOLD

for 1½" x ½" channel



HANDRAIL MOULDINGS

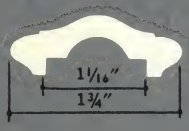
Scale = ½ size

All items in stock for immediate shipment

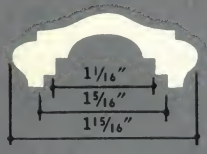
For complete listing of stock mouldings, see Catalog No. 8

SEE PAGE 5 FOR ILLUSTRATIONS OF MATCHING HANDRAIL FITTINGS

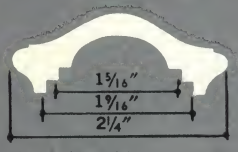
Steel, Bronze and Aluminum handrail mouldings are carried in stock in 20 foot lengths except as noted. Steel mouldings Nos. 4428, 4429, 4435, and 4441 are rolled from an especially soft steel to facilitate bending. Steel mouldings Nos. 4425, 4426, and 4434 are made of a soft cold rolled steel having a smooth bright surface. Bronze mouldings are extruded from a soft architectural bronze alloy for easy bending. Aluminum mouldings are extruded from alloy 6063-T5 suitable for Alumiliting. Fittings are carried in stock in malleable iron, bronze and aluminum as noted to match moulding profiles and finishes. Aluminum and Bronze fittings are satin finished and lacquered. Aluminum fittings are suitable for alumiliting after removal of lacquer. Bronze fittings match the color of extruded handrails.



4429 STEEL* 1.60 lb.
Fittings: B • C • E • F • GL • GR • L • N • S • SL • SR • T • U • UC • UL • V



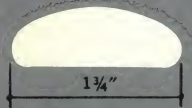
4428 STEEL* 1.95 lb.
Fittings: B • C • E • GL • GR • L • S • T • V



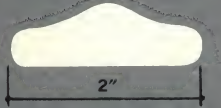
4441 STEEL* 2.00 lb.
Fittings: B • C • E • GL • GR • S • V



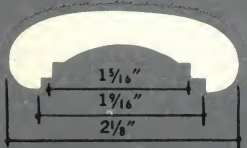
4437 STEEL 1.45 lb.
Fittings: GL • GR • UC • UL



4415 STEEL 3.04 lb.
No fittings available

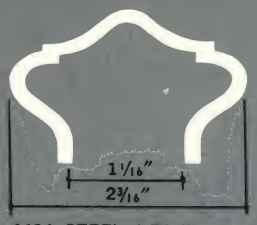


4416 STEEL 3.15 lb.
No fittings available

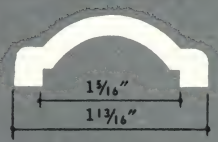


4435 STEEL*2.63 lb.
No fittings available

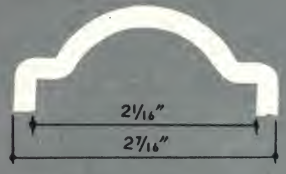
*PRIME DOMESTIC STEEL



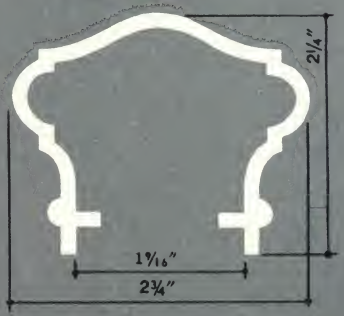
4434 STEEL 1.76 lb.
No fittings available



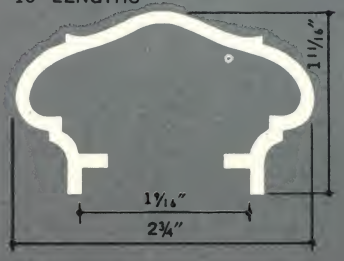
4426 STEEL 1.35 lb.
No fittings available



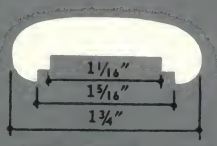
4425 STEEL 2.01 lb.
No fittings available



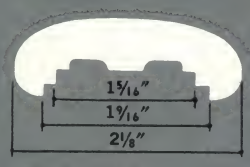
4533 BRONZE 3.37 lb.
No fittings available
16' LENGTHS



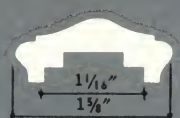
4538 BRONZE 2.75 lb.
Fittings: C



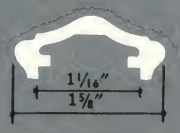
4539 BRONZE 2.56 lb.
6933 ALUMINUM .770 lb.
Fittings: B • C • GL • GR • N • S • V



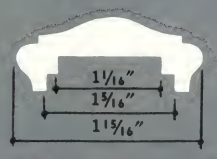
4535 BRONZE 3.01 lb.
6935 ALUMINUM .980 lb.
Fittings: B • C • E • GL • GR • L • N • S • T • V



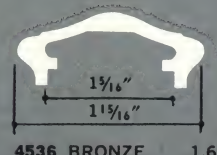
4531 BRONZE 1.93 lb.
6931 ALUMINUM .594 lb.
ALCOA 66294
Suitable for bending
Fittings: B • C • E • GL • GR • L • N • S • T • V



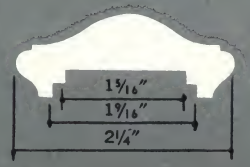
4537 BRONZE 1.30 lb.
For straight run work.
Fittings: Same as **4531.**



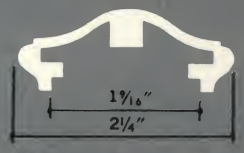
4534 BRONZE 2.43 lb.
6934 ALUMINUM .784 lb.
ALCOA 66295
Suitable for bending
Fittings: B • C • E • GL • GR • L • N • S • T • V



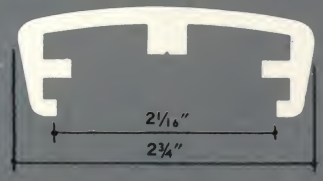
4536 BRONZE 1.63 lb.
For straight run work.
FITTINGS: Same as **4534.**



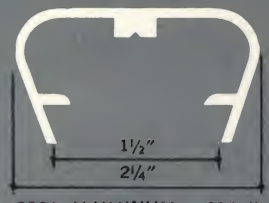
4530 BRONZE 2.91 lb.
6930 ALUMINUM .900 lb.
ALCOA 66296
Suitable for bending
Fittings: B • C • E • GL • GR • L • N • S • T • V



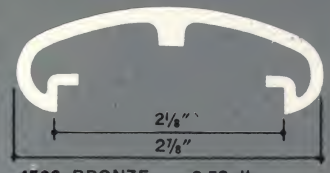
4532 BRONZE 2.13 lb.
6929 ALUMINUM .67 lb.
ALCOA 23681
For straight run work.
Fittings: Same as **4530** & **6930.**



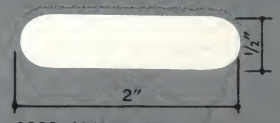
6987 ALUMINUM .858 lb.
Fittings: C • N



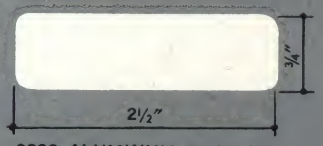
6981 ALUMINUM .694 lb.
ALCOA 25300
No fittings available



4529 BRONZE 2.53 lb.
6932 ALUMINUM .852 lb.
ALCOA 90503
Fittings: B • C • N • S • V



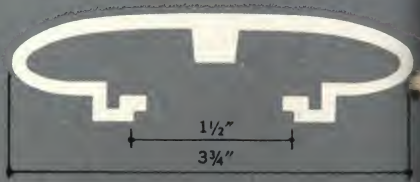
6988 ALUMINUM 1.138 lb.
No fittings available



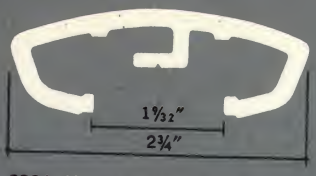
6939 ALUMINUM 2.214 lb.
No fittings available



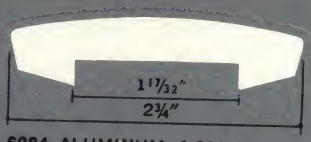
6986 ALUMINUM 2.684 lb.
No fittings available



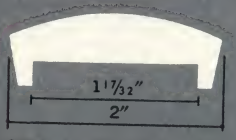
6983 ALUMINUM 1.408 lb.
ALCOA 16816
Fittings: C • N



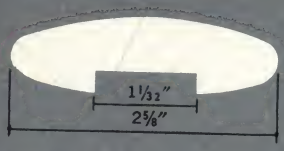
6904 ALUMINUM .871 lb.
ALCOA 87068
No fittings available



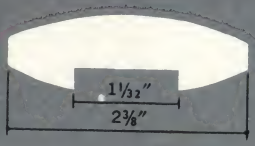
6984 ALUMINUM 1.301 lb.
Fittings: C • N



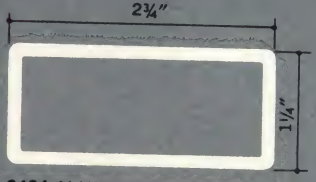
6985 ALUMINUM .977 lb.
Fittings: C • N



6901 ALUMINUM 1.650 lb
Fittings: C • N



6902 ALUMINUM 1.464 lb.
Fittings: C • N



6434 ALUMINUM 1.123 lb.
Fittings: End Cap See page 2.



OVAL TUBING STAINLESS STEEL
2" x ½" x .065" .944 lb.
No fittings available

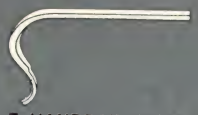
HANDRAIL FITTINGS
Not to scale



B BEVEL LAMB'S TONGUE



S STRAIGHT LAMB'S TONGUE



F HANDRAIL MOULDING WITH FORGED LAMB'S TONGUE 4429 only.



V VOLUTE



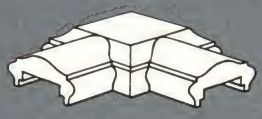
V VOLUTE
4529V
6932V



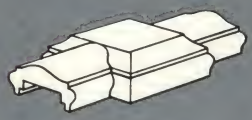
N SQUARE END PIECE



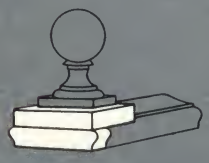
E TERMINAL



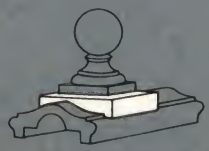
L CORNER PIECE



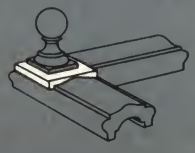
T CENTER PIECE



U END URN BASE



UC CENTER URN BASE



UL CORNER URN BASE



C CORNER BEND



CC CHANNEL CORNER BEND
Malleable Iron • Sections
100CC 1" x ½" x ⅛"
125CC 1¼" x ½" x ⅛"
150CC 1½" x ½" x ⅛"



P FLAT BAR LATERAL SCROLL
Steel • Sections:
100P 1" x ⅜"
125P 1¼" x ⅜"
150P 1½" x ⅜"



GL LEFT LATERAL SCROLL



GR RIGHT LATERAL SCROLL



CL LEFT CHANNEL LATERAL SCROLL



CR RIGHT CHANNEL LATERAL SCROLL

Malleable Iron • Sections:

100CL	1" x ½" x ⅛"	**100CR**
125CL	1¼" x ½" x ⅛"	**125CR**
150CL	1½" x ½" x ⅛"	**150CR**



SL LEFT JUNIOR LATERAL SCROLL
4429 only.



SR RIGHT JUNIOR LATERAL SCROLL
4429 only.



JL LEFT JUNIOR CHANNEL LATERAL SCROLL

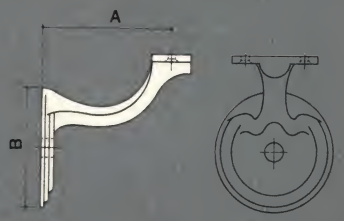


JR RIGHT JUNIOR CHANNEL LATERAL SCROLL

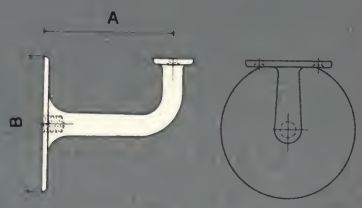
Malleable Iron • Section:
100 JL 1" x ½" x ⅛" **100 JR**

When ordering handrail fittings, give number of handrail and symbol of fitting, e.g. 4429-B

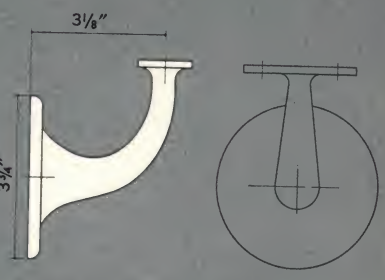
HANDRAIL BRACKETS
Not to scale



		A	B
379	CAST IRON	2½"	2¾"
387	BRONZE	2½"	2¾"
383	ALUMINUM	2½"	2¾"
381	MALLEABLE IRON	2½"	2¾"
305	MALLEABLE IRON	3"	3¼"
317	BRONZE	3"	3¼"
315	ALUMINUM	3"	3¼"

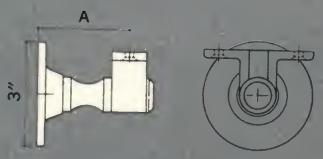


		A	B
373	CAST IRON	2½"	3½"
377	MALLEABLE IRON	2½"	3⅛"
370	BRONZE	2½"	3⅛"
371	ALUMINUM	2½"	3⅛"
385	MALLEABLE IRON	3"	3⅛"
304	BRONZE	3⅛"	3¾"
302	ALUMINUM	3⅛"	3¾"



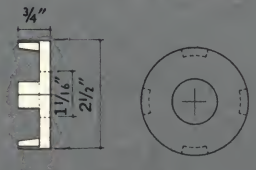
ALCOA NO. 303-B ALUMINUM Unpolished

ADJUSTABLE WALL BRACKETS



		A
313	ALUMINUM	2⅝
314	ALUMINUM	3⅛

WALL BRACKET FILLER



372 CAST IRON

ORNAMENTAL CASTINGS FOR RAILINGS AND TREILLAGE

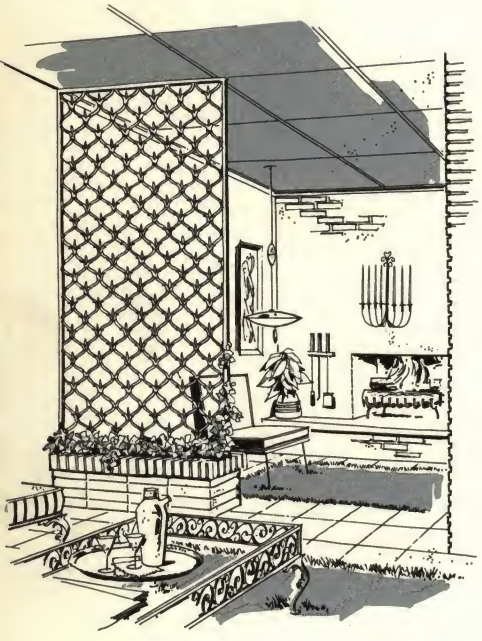
MALLEABLE IRON — NO BREAKAGE

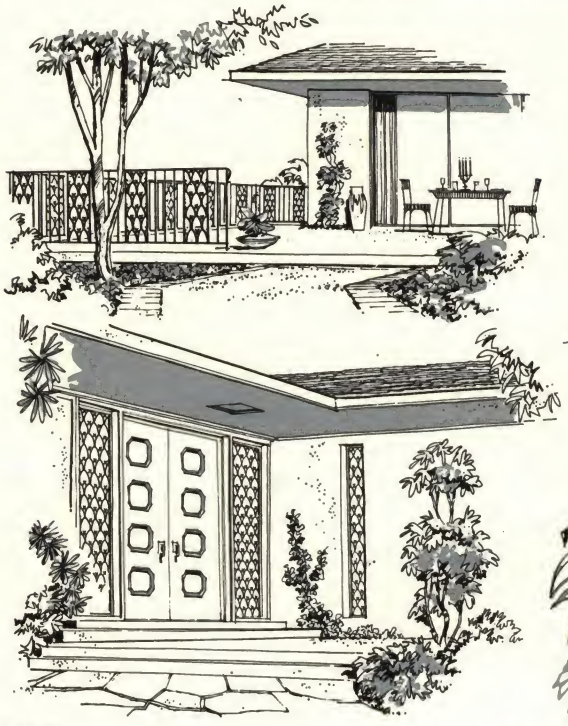
Scale approx. ¾" = 1'-0"

These ornamental castings are clean in appearance with every detail executed perfectly. They are made of high grade malleable iron, will not break under ordinary conditions and will withstand considerable abuse. They may be bent to meet the builder's individual conditions such as may occur on curved railings and balconies. The castings may be welded into steel framework or to each other, and may be hammer-marked or given other types of finishes. These desirable features, made possible by the use of high quality materials, make these castings superior to ordinary cast iron castings and reduce the cost of fabrication and installation as well as producing a more attractive and permanent finished job. Patterns may be repeated or alternated to form continuous designs and all castings are double-faced allowing their use right or left hand.

All items in stock for immediate shipment

Shown here are only a few of the many stock designs of Julius Blum & Co.
For the complete line, see Catalog No. 8.





NEW!

The new "Amsterdam" and "Canterbury" castings can be used singly or combined into continuous patterns both horizontally and vertically. This makes them adaptable to room dividers, gates, and grilles as well as railings and columns.



NEW!

Patterned from the gates of "Cambridge" this fine English design illustrates its versatility in railings and columns. These four patterns may be combined into many forms for a variety of purposes.

"AMSTERDAM"*



590 PANEL
HGT. 27" **WIDTH** 13½"
WT. LBS. 10.5

***PATENT PENDING**

"CANTERBURY"*



589 PANEL
HGT. 27" **WIDTH** 9"
WT. LBS. 8.8

"CAMBRIDGE"



596 PANEL
HGT. 10⅛" **WIDTH** 8"
WT. LBS. 3.6



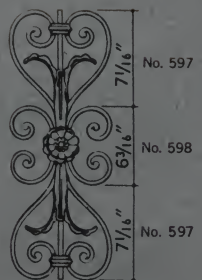
598 PANEL
HGT. 6³⁄₁₆" **WIDTH** 8"
WT. LBS. 2.8



597 PANEL
HGT. 9⁵⁄₁₆" **WIDTH** 8"
WT. LBS. 2.6



599 PANEL
HGT. 11⅞" **WIDTH** 8"
WT. LBS. 4.1



Cambridge castings are cored to slide over ½" square bar

"CHATEAU"



NO.	ITEM	HGT.	WIDTH	WT. LBS.
537	RAILING PANEL	37″	8¼″	4.4
538	RAILING PANEL	33″	9¼″	6.8
539	RAILING PANEL	34″	8½″	7.8
540	RAILING PANEL	24″	10⅝″	9.0
541	RAILING PANEL	24″	10⅝″	10.0

"PRIMAVERA"



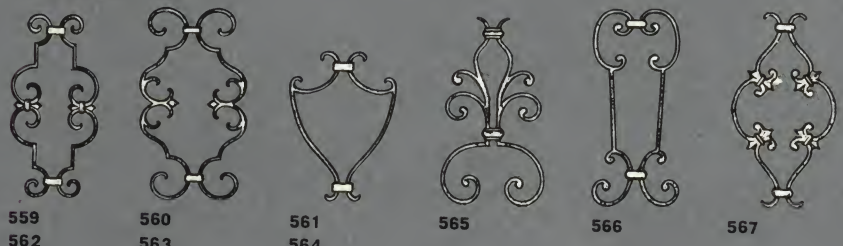
NO.	ITEM	HGT.	WIDTH	WT. LBS.
591	PANEL	10″	10″	3.9
592	PANEL	10″	10″	3.4
593	PANEL	10″	10″	3.2
594	PANEL	10″	10″	3.0
595	PANEL	10″	10″	3.7

"DRESDEN"

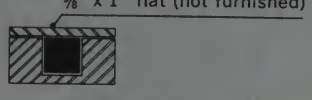


NO.	ITEM	HGT.	WIDTH	WT. LBS.
568	RAILING PANEL	28″	8½″	8.7
569	CONTINUOUS DESIGN	21″	8½″	6.5
570	RAILING PANEL collar opening ½″ sq.	12½″	8½″	4.1
571	RAILING PANEL	28″	11″	14.0
572	CONTINUOUS DESIGN	22½″	6⅞″	5.7
573	CORNER ROSETTE	6⅞″	6⅞″	2.3
574	CORNER BRACKET	10¼″	16″	5.0

"FLORENTINE"



NO.	ITEM	COLLAR OPENING	HGT.	WDTH.	WT. LBS.
559	RAILING PANEL	½″ sq.	15″	7″	3.0
560	RAILING PANEL	½″ sq.	16″	8½″	3.6
561	RAILING PANEL	½″ sq.	12″	8½″	1.9
562	RAILING PANEL	⅝″ sq.	15″	7″	3.8
563	RAILING PANEL	⅝″ sq.	16″	8½″	4.5
564	RAILING PANEL	⅝″ sq.	12″	8½″	2.6
565	RAILING PANEL	½″ sq.	15″	8½″	3.3
566	RAILING PANEL	½″ sq.	16″	7″	2.9
567	RAILING PANEL	½″ sq.	16″	8½″	3.3



TYPICAL SECTION
THRU COLLARS

"REGENCE"



NO.	ITEM	HGT.	WIDTH	WT. LBS.
576	RAILING PANEL	29″	8″	10.1
577	CORNER BRACKET	15¼″	18″	8.2
578	CORNER ROSETTE	8″	8″	3.2



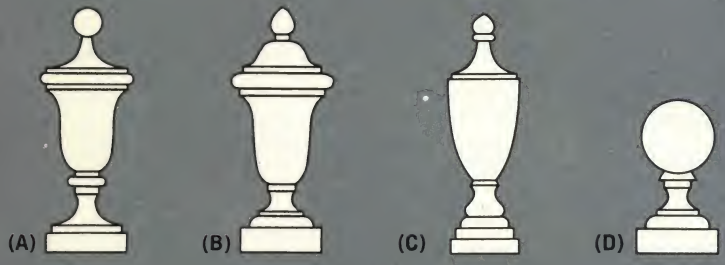
STOCK RAILING COMPONENTS

Not to scale

All items in stock for immediate shipment

Aluminum and bronze urns and ball finials are machined from solid stock and are polished and lacquered. Ornamental starting posts are designed to allow for adjustment to varying railing heights without interference with the ornamentation. Ornamental baluster bars, forged spindles and starting posts are forged in one solid piece except for spindles 337 and 338 which have bronze center collars. Bases, collars and flanges are carried in stock for use with posts, balusters, spindles, bar stock and tubing.

URN AND BALL FINIALS



POLISHED BRONZE (SEE A)

SQUARE BASE	ROUND BASE	HEIGHT	BASE
3123	3023	3″	1″
3124	3024	4″	1¼″
3125	3025	5″	1½″
3126		6″	1¾″

POLISHED ALUMINUM (SEE A)

SQUARE BASE	ROUND BASE	HEIGHT	BASE
3323	3223	3″	1″
3324	3224	4″	1¼″

MALLEABLE IRON (SEE A)

SQUARE BASE	HEIGHT	BASE
3523	3″	1″
3524	4″	1¼″
3525	5″	1½″
3526	6″	1¾″

POLISHED BRONZE (SEE B)

SQUARE BASE	ROUND BASE	HEIGHT	BASE
3133	3033	3″	1″
3134	3034	4″	1½″

POLISHED BRONZE (SEE C)

SQUARE BASE	ROUND BASE	HEIGHT	BASE
	3053	3½″	⅞″
3164	3064	4″	1¼″ SQ. – 1⅛″ RD.
	3073	3″	⅞″

UNPOLISHED BRONZE (SEE C)

SQUARE BASE	ROUND BASE	HEIGHT	BASE
3157	3057	3½″	1″ SQ. – ⅞″ RD.
3167	3067	4″	1¼″ SQ. – 1⅛″ RD.
3177	3077	3″	1″ SQ. – ⅞″ RD.

ALUMINUM (SEE C)

ROUND BASE		HEIGHT	BASE
3273	POLISHED	3″	⅞″
3277	UNPOLISHED	3″	⅞″

POLISHED BRONZE (SEE D)

SQUARE BASE	ROUND BASE	DIA. BALL	HGT.	BASE
3141	3041	1″	1¾″	⅞″
3142	3042	1¼″	2⅜″	1⅛″
3143	3043	1½″	2¾″	1¼″
3144	3044	1¾″	3⅛″	1½″
3145	3045	2″	3½″	1¾″

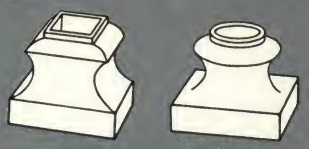
POLISHED ALUMINUM (SEE D)

SQUARE BASE	ROUND BASE	DIA. BALL	HGT.	BASE
3342	3242	1¼″	2⅜″	1⅛″
3343	3243	1½″	2¾″	1¼″

MALLEABLE IRON (SEE D)

SQUARE BASE	ROUND BASE	DIA. BALL	HGT.	BASE
3541	3441	1″	1¾″	⅞″
3542		1¼″	2⅜″	1⅛″
3543		1½″	2¾″	1¼″
3544		1¾″	3⅛″	1½″
3545		2″	3⅜″	1¾″

BASES

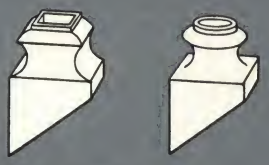


SQUARE HOLE

POLISHED BRONZE	POLISHED ALUM.	CAST IRON	HOLE SIZE
252	752	352	½″
253	753	353	⅝″
254	754	354	¾″
267	767	367	1″
268	768	368	1¼″
269	769	369	1½″

ROUND HOLE

255	355	⅜″
256	356	½″
267	357	⅝″
249	349	1″



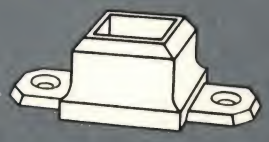
SQUARE HOLE

POLISHED BRONZE	CAST IRON	HOLE SIZE
262	362	½″
263	363	⅝″
	364	¾″

ROUND HOLE

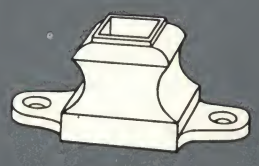
259	359	⅜″
260	360	½″
261	361	⅝″

FLANGES



SQUARE HOLE

MALLEABLE IRON	HEIGHT	HOLE SIZE
342	1⅛″	7/16″
344	1⅛″	½″
350	1 3/16″	½″
351	1 3/16″	⅝″
398	⅞″	¾″
399	1⅛″	1″



SQUARE HOLE

MALLEABLE IRON	HEIGHT	HOLE SIZE
390	1″	½″
391	1″	⅝″
393	1 3/16″	1″



ROUND HOLE

MALLEABLE IRON	HEIGHT	HOLE SIZE
395	1″	⅜″
396	1″	½″
397	1⅛″	⅝″

COLLARS



SQUARE HOLE

POLISHED BRONZE	POLISHED ALUMINUM	CAST IRON	HOLE SIZE
265	765	365	1/2"
266	766	366	5/8"
		348	3/4"

ROUND HOLE

POLISHED BRONZE	HOLE SIZE
281	1/2"
282	5/8"

COLLARS AND BASES

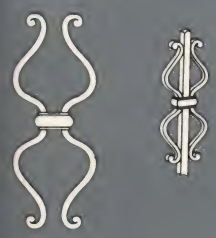


NO. 72	NO. 73	NO. 75
272	74	77
	274	80

ROUND HOLE

TURNED STEEL	TURNED BRASS	HOLE SIZE
75		3/8"
77	80	1/2"
73		3/8"
72	272	1/2"
74	274	5/8"

ORNAMENTAL BALUSTER COLLARS



MALLEABLE IRON	HOLE SIZE	WIDTH	HGT.
546	1/2"	3"	7 3/4"
547	5/8"	3"	7 3/4"

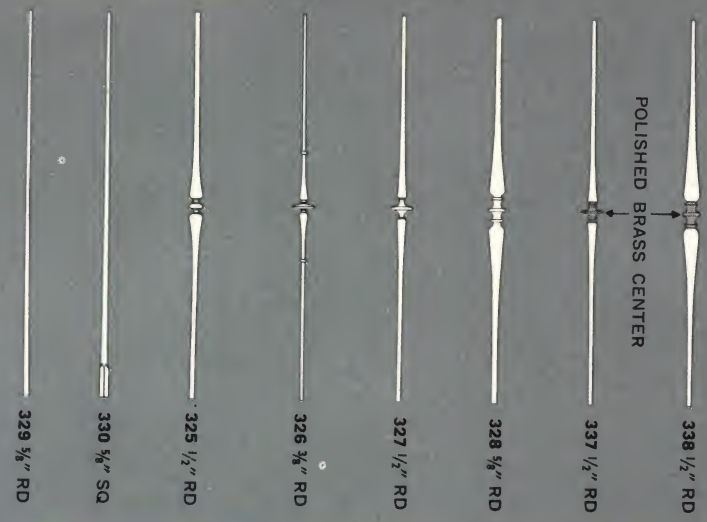


MALLEABLE IRON	HOLE SIZE	WIDTH	HGT.
543	1/2"	4 3/4"	4 3/8"
535	5/8"	4 3/4"	4 3/8"



MALLEABLE IRON	HOLE SIZE	WIDTH	HGT.
544	1/2"	3"	4 3/4"
545	5/8"	3"	4 3/4"

FORGED SPINDLES STEEL – LENGTH 36"

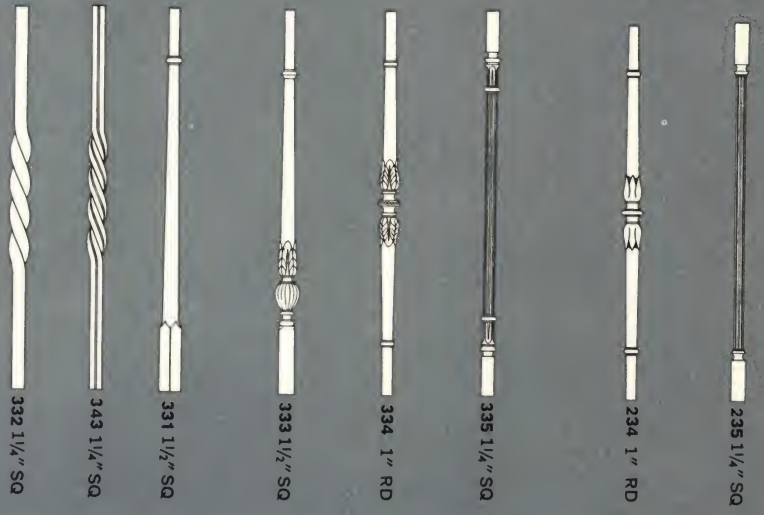


FORGED STARTING POSTS STEEL – 36"

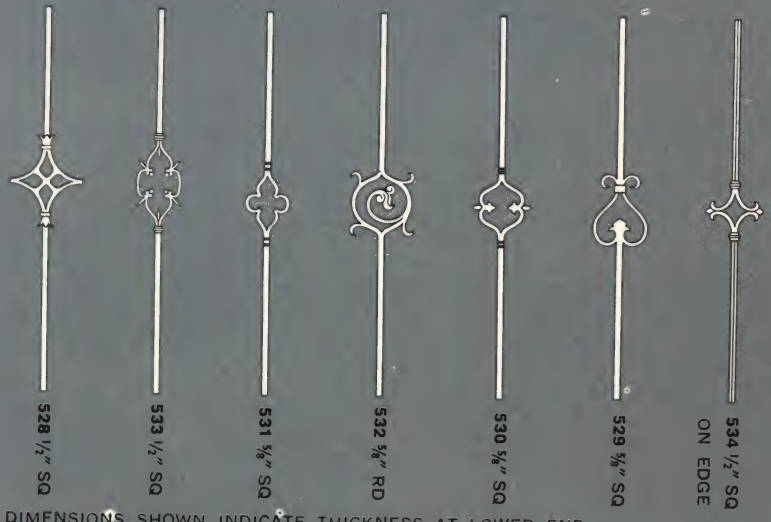
ORNAMENTAL STARTING POSTS LENGTH 36"

MALLEABLE IRON

BRONZE – NEW STOCK ITEMS



ORNAMENTAL BALUSTER BARS STEEL – LENGTH 39"

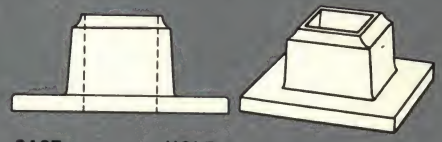


DIMENSIONS SHOWN INDICATE THICKNESS AT LOWER END.

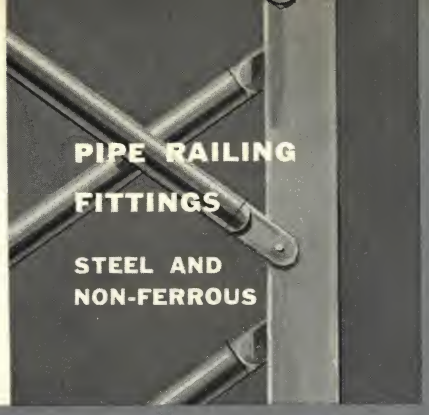
TUBE SOCKETS



CAST IRON	HOLE SIZE	HGT.
615	3/4"	1 3/4"
616	1"	2 1/4"



CAST IRON	HOLE SIZE	BASE	HGT.
201	1"	3"	1 3/8"
202	1 1/4"	3 1/4"	1 1/2"
203	1 1/2"	3 1/2"	1 3/4"
204	2"	4"	1 3/4"
205	2 1/2"	4 1/2"	1 7/8"
206	3"	5 3/16"	2 3/8"



PIPE RAILING FITTINGS

STEEL AND NON-FERROUS

All items in stock for immediate shipment

Aluminum and Bronze fittings are satin finished and lacquered except as noted. Aluminum fittings are of Alloy 214 and are suitable for Alumiliting after removal of lacquer. Bronze fittings are of an architectural bronze alloy and match the color of bronze tubing, shapes and bars. Pipe Rail Brackets are furnished with screw holes for fastening to wall and to pipe. Stainless Steel Fittings are of Type 302 18-8 Stainless, polished to a No. 4 (180 grit) finish to match our stainless pipe.

45° ELBOW STEEL



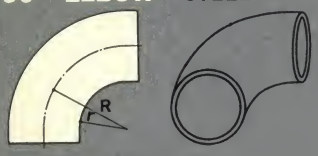
SHORT RADIUS

NO.	PIPE	r	R
929	1"	1"	1 1/16"
930	1 1/4"	1"	1 3/16"
931	1 1/2"	1"	1 5/16"
932	2"	1"	2 3/16"

LONG RADIUS

NO.	PIPE	r	R
933	1 1/4"	2"	2 3/16"
934	1 1/2"	2"	2 5/16"

90° ELBOW STEEL



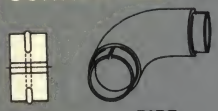
SHORT RADIUS

NO.	PIPE	r	R
917	1"	1"	1 1/16"
918	1 1/4"	1"	1 3/16"
919	1 1/2"	1"	1 5/16"
920	2"	1"	2 3/16"

LONG RADIUS

NO.	PIPE	r	R
925	1 1/4"	2"	2 3/16"
926	1 1/2"	2"	2 5/16"

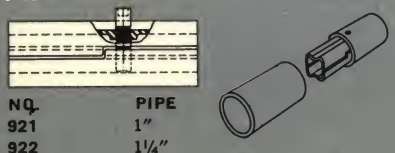
CONNECTOR STEEL



NO.	PIPE
951	1"
952	1 1/4"
953	1 1/2"
954	2"
961*	1"
962*	1 1/4"
963*	1 1/2"
964*	2"

For connecting standard pipe fittings to light weight structural pipe.

PIPE SPLICE LOCK STEEL

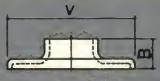


NO.	PIPE
921	1"
922	1 1/4"
923	1 1/2"
924	2"

A single screw locks pipe permanently.

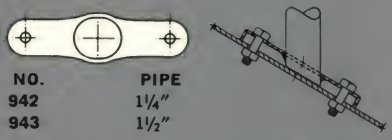
*NEW STOCK ITEM

ROUND SLIP FLANGE STEEL



NO.	PIPE	B	V
913	3/4"	3/4"	3 1/4"
914	1"	7/8"	3 3/4"
910	1 1/4"	7/8"	3 3/4"
911	1 1/2"	7/8"	4 1/4"
912	2"	7/8"	4 3/4"

OVAL POST FLANGE STEEL (ANGLE)



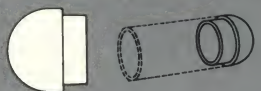
NO.	PIPE
942	1 1/4"
943	1 1/2"

OVAL POST FLANGE STEEL (FLOOR)



NO.	PIPE
927	1 1/4"
928	1 1/2"

DRIVE ON CAP STEEL



NO.	PIPE
906	1"
907	1 1/4"
908	1 1/2"
909	2"

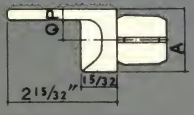
WELD ON CAP STEEL



NO.	PIPE
936	1"
937	1 1/4"
938	1 1/2"
939	2"

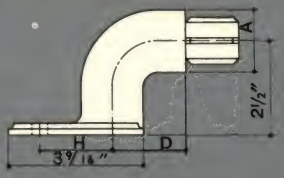
SQUARE POST FITTING

MALLEABLE IRON (BLACK ONLY)



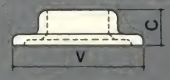
BLACK	PIPE	A	P	Q
601	1 1/4"	1 21/32"	3/8"	2 9/64"
602	1 1/2"	1 29/32"	7/16"	3 3/64"

WALL RETURN CAST IRON



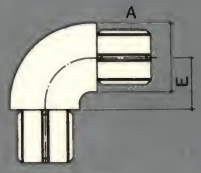
BLACK	GALV.	PIPE	A	D	H
604	1604	1 1/4"	1 21/32"	1 5/16"	1 5/8"
605	1605	1 1/2"	1 29/32"	2 1/16"	1 11/16"

SLIP FLANGE CAST IRON



BLACK	GALV.	PIPE	V	C
613	1613	3/4"	3 3/8"	1 3/32"
614	1614	1"	3 5/8"	1 11/32"
610	1610	1 1/4"	3 7/8"	1 11/16"
611	1611	1 1/2"	4 3/16"	2"
612	1612	2"	4 5/8"	2 7/16"

90° ELBOW MALLEABLE IRON



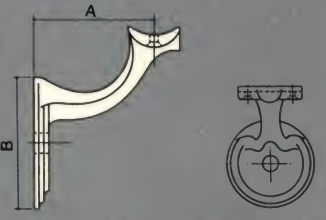
BLACK	GALV.	PIPE	A	E
617	1617	1"	1 5/16"	1"
618	1618	1 1/4"	1 21/32"	1 1/4"
619	1619	1 1/2"	1 29/32"	1 1/2"
620	1620	2"	2 3/8"	1 7/8"

PIPE PLUG CAST IRON

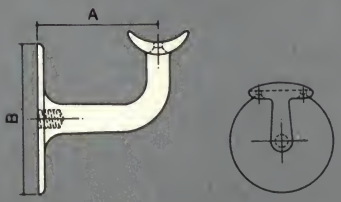


BLACK	GALV.	PIPE
606	1606	1"
607	1607	1 1/4"
608	1608	1 1/2"
609	1609	2"

BRACKET



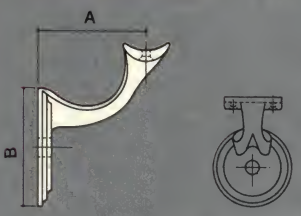
NO.	MALLEABLE IRON	A	B
306	BLACK	3"	3 1/4"
1306	GALVANIZED	3"	3 1/4"
382	BLACK	2 1/2"	2 3/4"
1382	GALVANIZED	2 1/2"	2 3/4"
	CAST IRON		
380	BLACK	2 1/2"	2 3/4"



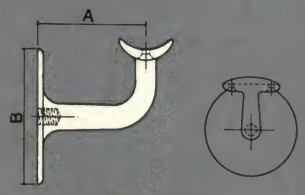
NO.	MALLEABLE IRON	A	B
378	BLACK	2 1/2"	3 1/8"
1378	GALVANIZED	2 1/2"	3 1/8"
386	BLACK	3"	3 1/8"
1386	GALVANIZED	3"	3 1/8"
	CAST IRON		
374	BLACK	2 1/2"	3 1/2"

PIPE HANDRAIL FITTINGS, POLISHED (FLUSH TYPE)

PIPE BRACKET (NON-FERROUS)

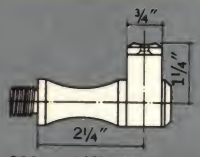


		A	B
384	ALUMINUM	2½″	2¾″
388	BRONZE	2½″	2¾″
316	ALUMINUM	3″	3¼″
318	BRONZE	3″	3¼″

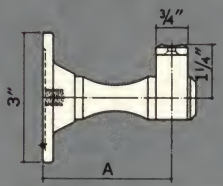


		A	B
376	ALUMINUM	2½″	3⅛″
375	BRONZE	2½″	3⅛″
275	STAINLESS	2½″	3⅛″
389	ALUMINUM	3⅛″	3¾″
319	BRONZE	3⅛″	3¾″

ADJUSTABLE BRACKET



322 ALUMINUM (post mounting)



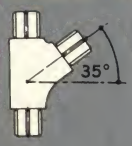
			A
307	ALUMINUM	(wall mounting)	2½″
308	ALUMINUM	(wall mounting)	3″

90° TEE



NO.		PIPE
721	ALUMINUM	1¼″
722	ALUMINUM	1½″
723	ALUMINUM	2″
821	BRONZE	1¼″
822	BRONZE	1½″

ANGLE TEE



NO.		PIPE
736	ALUMINUM	1¼″
737	ALUMINUM	1½″

VERTICAL ANGLE ELBOW



NO.		PIPE
733	ALUMINUM	1¼″
734	ALUMINUM	1½″

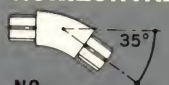
*NEW STOCK ITEM

90° ELBOW



NO.		PIPE
718	ALUMINUM	1¼″
719	ALUMINUM	1½″
720	ALUMINUM	2″
818	BRONZE	1¼″
819	BRONZE	1½″
218	STAINLESS	1¼″
219	STAINLESS	1½″

HORIZONTAL ANGLE ELBOW



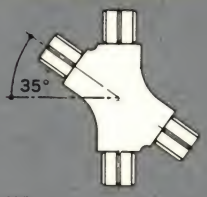
NO.		PIPE
730	ALUMINUM	1¼″
731	ALUMINUM	1½″

90° CROSS



NO.		PIPE
724	ALUMINUM	1¼″
725	ALUMINUM	1½″
726	ALUMINUM	2″
824	BRONZE	1¼″
825	BRONZE	1½″

ANGLE CROSS



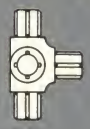
NO.		PIPE
739	ALUMINUM	1¼″
740	ALUMINUM	1½″

FACIA FLANGE*



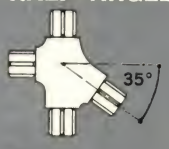
NO.		PIPE
745	ALUMINUM	1¼″
746	ALUMINUM	1½″

90° TEE (SIDE OUTLET*)



NO.		PIPE
791	ALUMINUM	1¼″
792	ALUMINUM	1½″

HALF ANGLE CROSS*



NO.		PIPE
789	ALUMINUM	1¼″
790	ALUMINUM	1½″

90° CROSS (SIDE OUTLET*)



NO.		PIPE
794	ALUMINUM	1¼″
795	ALUMINUM	1½″

HALF ANGLE TEE*



NO.		PIPE
786	ALUMINUM	1¼″
787	ALUMINUM	1½″

90° ELBOW (SIDE OUTLET*)



NO.		PIPE
798	ALUMINUM	1¼″
799	ALUMINUM	1½″

ADAPTER



For stainless or aluminum thinwall pipe. Fits over plug of flush fittings.

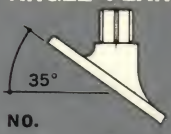
NO.			PIPE
780	ALUMINUM	for Schedule 5	1¼″
781	ALUMINUM	for Schedule 10	1¼″
782	ALUMINUM	for Schedule 5	1½″
783	ALUMINUM	for Schedule 10	1½″

FLOOR FLANGE



NO.		PIPE
727	ALUMINUM	1¼″
728	ALUMINUM	1½″
729	ALUMINUM	2″
827	BRONZE	1¼″
828	BRONZE	1½″

ANGLE FLANGE



NO.		PIPE
742	ALUMINUM	1¼″
743	ALUMINUM	1½″

COVER FLANGE



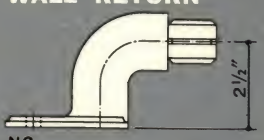
NO.		PIPE
714	ALUMINUM	1″
710	ALUMINUM	1¼″
711	ALUMINUM	1½″
712	ALUMINUM	2″
810	BRONZE	1¼″
811	BRONZE	1½″
210	STAINLESS	1¼″
211	STAINLESS	1½″

PIPE PLUG



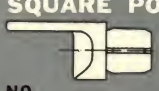
NO.		PIPE
707	ALUMINUM	1¼″
708	ALUMINUM	1½″
709	ALUMINUM	2″
807	BRONZE	1¼″
808	BRONZE	1½″
207	STAINLESS	1¼″
208	STAINLESS	1½″

WALL RETURN

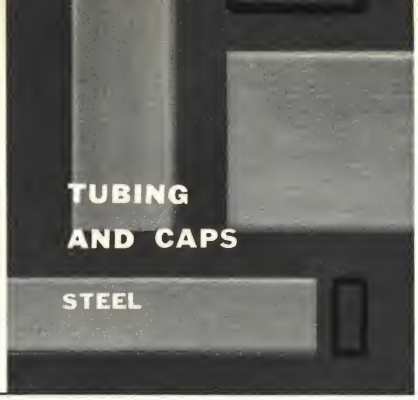


NO.		PIPE
704	ALUMINUM	1¼″
705	ALUMINUM	1½″
804	BRONZE	1¼″
805	BRONZE	1½″
215	STAINLESS	1¼″
216	STAINLESS	1½″

SQUARE POST FITTING



NO.		PIPE
701	ALUMINUM	1¼″
702	ALUMINUM	1½″



Tubing with 11 gauge and heavier wall has slightly rounded corners with the radius of the corners being governed by the wall thickness. Tubing can be furnished cut to specified lengths and can be galvanized to order if required. Additional sizes up to 12" x 12" square and up to 10" x 14" rectangular with walls up to ½" thick, as well as Copper Bearing Tubing can be obtained from mill. Where wall thickness according to gauge No., decimal and fractional inch are not identical, the decimal measurement is exact, the others are approximate. Elements of sections have been calculated on a theoretical basis. While the figures have been ascertained with care, they cannot be guaranteed.

The material is mechanical welded tubing except as noted.

All items in stock for immediate shipment

RECTANGULAR STEEL TUBING

STOCK SIZES — ELEMENTS OF SECTIONS

O.D. INCHES	THICKNESS: B. W. GAUGE	DECIMAL INCH	FRACTION INCH	STOCK LENGTH FEET	WEIGHT LB./FT.	AREA SQ. IN.	MAJOR AXIS: MOM. OF INERTIA	MAJOR AXIS: SECTION MODULUS	MAJOR AXIS: RADIUS OF GYRATION	MINOR AXIS: MOM. OF INERTIA	MINOR AXIS: SECTION MODULUS	MINOR AXIS: RADIUS OF GYRATION
⅜ x ¾	16	.065	1/16	20	.4950	.129	.002	.013	.139	.008	.022	.253
⅜ x 1	16	.065	1/16	20	.6055	.162	.003	.018	.143	.018	.036	.332
½ x 1¼	16	.065	1/16	20	.7160	.211	.008	.033	.198	.038	.061	.425
⅝ x 2	14	.083	5/64	20	1.458	.408	.026	.083	.252	.181	.181	.665
¾ x 1½	16	.065	1/16	20	.9370	.276	.025	.068	.304	.078	.104	.532
¾ x 1½	14	.083	5/64	20	1.176	.346	.031	.082	.297	.095	.127	.526
1 x 1¼	16	.065	1/16	20	.9370	.276	.043	.085	.394	.061	.097	.470
1 x 1¼	14	.083	5/64	20	1.176	.346	.052	.104	.387	.074	.119	.463
1 x 1½	16	.065	1/16	20	1.048	.308	.050	.100	.402	.095	.126	.555
1 x 1½	14	.083	5/16	20	1.317	.387	.060	.121	.395	.116	.155	.548
1 x 1½	11	.120	⅛	20	1.844	.542	.079	.158	.381	.155	.206	.534
1 x 2	16	.065	1/16	20	1.269	.373	.064	.128	.414	.193	.193	.718
1 x 2	14	.083	5/64	20	1.600	.470	.078	.156	.407	.238	.238	.711
1 x 2	11	.120	⅛	20	2.252	.662	.102	.204	.392	.212	.322	.697
1 x 2½	14	.083	5/64	20	1.882	.553	.095	.191	.415	.322	.335	.869
1 x 3	14	.083	5/64	20	2.164	.636	.113	.226	.421	.668	.445	1.025
1 x 3½	14	.083	5/64	20	2.446	.719	.130	.261	.426	.997	.570	1.177
1¼ x 1¾	14	.083	5/64	20	1.600	.470	.117	.187	.498	.199	.228	.651
1¼ x 2	14	.083	5/64	20	1.741	.512	.131	.209	.506	.276	.276	.734
1¼ x 2½	14	.083	5/64	20	2.023	.595	.159	.255	.517	.479	.383	.897
1¼ x 3	14	.083	5/64	20	2.305	.678	.187	.300	.526	.758	.505	1.057
1¼ x 3½	14	.083	5/64	20	2.587	.805	.227	.362	.530	1.179	.673	1.213
1½ x 2	14	.083	5/64	20	1.882	.553	.200	.266	.601	.314	.314	.753
1½ x 2	11	.120	⅛	20	2.660	.781	.270	.340	.588	.429	.429	.742
1½ x 2½	14	.083	5/64	20	2.164	.636	.241	.322	.616	.540	.432	.921
1½ x 2½	11	.120	⅛	20	3.068	.902	.326	.435	.601	.741	.593	.906
1½ x 2½	9	.145	9/64	22-24	3.510 *	1.096	.382	.510	.590	.879	.703	.895
1½ x 2½	7	.188	3/16	22-24	4.430 *	1.363	.452	.602	.578	1.056	.845	.880
1½ x 3	16	.065	1/16	20	1.932	.568	.229	.305	.635	.676	.451	1.091
1½ x 3	14	.083	5/64	20	2.446	.720	.283	.377	.627	.845	.563	1.084
1½ x 3	11	.120	⅛	20	3.476	1.022	.384	.512	.613	1.167	.778	1.069
1½ x 3	7	.180	3/16	24	5.272	1.490	.518	.690	.596	1.627	1.085	1.045
1½ x 3½	16	.065	1/16	20	2.153	.633	.262	.350	.644	.990	.566	1.250
1½ x 3½	14	.083	5/64	20	2.728	.802	.325	.433	.636	1.240	.708	1.243
2 x 3	14	.083	5/64	20	2.728	.802	.543	.543	.823	1.021	.681	1.128
2 x 3	11	.120	⅛	20	3.884	1.142	.716	.716	.792	1.399	.933	1.107
2 x 3	7	.180	3/16	24	5.911	1.677	1.030	1.030	.784	1.985	1.324	1.088
2 x 4	14	.083	5/64	20	3.293	.968	.696	.696	.848	2.053	1.027	1.456
2 x 4	11	.120	⅛	20	4.700	1.382	.958	.958	.833	2.870	1.435	1.441
2 x 4	7	.180	3/16	24	6.903	2.030	1.333	1.333	.810	4.075	2.038	1.417
2 x 4	4	.238	¼	24	8.950	2.630	1.613	1.613	.781	5.095	2.548	1.395
2 x 5	7	.180	3/16	24	8.129	2.490	1.674	1.674	.820	7.453	2.981	1.729
2 x 10	7	.188	3/16	24	14.420†	4.269	3.060	3.060	.850	42.200	8.440	3.150
2 x 12	7	.188	3/16	24	16.980†	5.019	3.660	3.660	.860	69.900	11.650	3.740
2½ x 4	7	.180	3/16	24	7.516†	2.303	2.315	1.832	1.005	4.909	2.454	1.460
2½ x 5	7	.180	3/16	24	8.743	2.671	2.812	2.249	1.025	8.522	3.409	1.786
3 x 4	11	.120	⅛	24	5.800	1.622	2.412	1.608	1.219	3.730	1.865	1.516
3 x 4	7	.180	3/16	24	8.129	2.390	3.419	2.279	1.196	5.390	2.695	1.502
3 x 4	4	.238	¼	24	10.56	3.089	3.775	2.517	1.105	5.979	2.990	1.391
3 x 5	7	.180	3/16	24	9.350	2.859	4.288	2.859	1.224	9.631	3.852	1.833
3 x 6	7	.180	3/16	24	10.57	3.242	5.032	3.355	1.246	15.103	5.034	2.158
3 x 6	4	.238	¼	24	14.45	4.250	6.338	4.225	1.221	19.339	6.446	2.133
3 x 8	7	.188	3/16	24	13.04†	3.830	6.286	4.190	1.281	29.892	7.473	2.794
3 x 8	4	.250	¼	24	17.11†	5.089	7.567	5.045	1.219	36.531	9.133	2.679
4 x 6	7	.180	3/16	24	11.81	3.610	9.333	4.666	1.608	17.580	5.860	2.207
4 x 6	4	.238	¼	24	15.40	4.750	12.432	6.216	1.618	23.474	7.825	2.223
4 x 8	7	.188	3/16	24	14.27†	4.190	11.961	5.981	1.690	35.397	8.849	2.906
4 x 8	4	.250	¼	24	19.55†	5.589	14.782	7.391	1.626	44.042	11.010	2.807

*Hot Rolled Butt Welded Tubing (Rectangular Pipe) †Espro Structural Tubing



All items in stock for immediate shipment

SQUARE STEEL TUBING

Mechanical welded, except as noted.

STOCK SIZES | ELEMENTS OF SECTIONS

O.D. INCHES	THICKNESS: B. W. GAUGE	DECIMAL INCH	FRACTION INCH	STOCK LENGTH FEET	WEIGHT LB./FT.	AREA SQ. IN.	MOM. OF INERTIA	SECTION MODULUS	RADIUS OF GYRATION
⅜	18	.049	3/64	20	.2172	.064	.001	.006	.135
½	20	.035	1/32	20	.2213	.065	.002	.009	.190
½	18	.049	3/64	20	.3005	.088	.003	.012	.185
½	16	.065	1/16	20	.3845	.113	.004	.015	.180
⅝	20	.035	1/32	20	.2808	.083	.005	.015	.241
⅝	18	.049	3/64	20	.3838	.113	.006	.020	.236
⅝	16	.065	1/16	20	.4950	.146	.008	.025	.230
¾	20	.035	1/32	20	.3043	.100	.009	.023	.292
¾	16	.065	1/16	20	.6055	.178	.014	.038	.281
¾	15	.076	1/16	16	.750**	.196	.016	.040	.278
¾	11	.120	⅛	20	1.030	.302	.021	.055	.262
⅞	20	.035	1/32	20	.3998	.118	.014	.032	.343
⅞	16	.065	1/16	20	.7160	.211	.023	.053	.332
1	20	.035	1/32	20	.4593	.135	.021	.042	.394
1	18	.049	3/64	20	.6337	.186	.028	.056	.389
1	16	.065	1/16	20	.8265	.243	.036	.071	.383
1	15	.073	1/16	16	.920**	.267	.039	.077	.380
1	14	.083	5/64	20	1.035	.304	.043	.086	.376
1	11	.120	⅛	20	1.436	.422	.056	.111	.363
1⅛	16	.065	1/16	20	.9370	.276	.052	.092	.434
1¼	20	.035	1/32	20	.5783	.170	.042	.067	.496
1¼	18	.049	3/64	20	.8003	.235	.057	.091	.491
1¼	16	.065	1/16	20	1.048	.308	.072	.116	.485
1¼	14	.083	5/64	20	1.317	.387	.088	.141	.478
1¼	13	.090	3/32	20	1.500**	.437	.098	.157	.473
1¼	11	.120	⅛	20	1.844	.542	.117	.187	.464
1¼	10	.135	9/64	22-24	1.960*	.602	.127	.203	.459
1¼	7	.188	3/16	22-24	2.620*	.799	.155	.248	.440
1½	20	.035	1/32	20	.6973	.205	.073	.098	.598
1½	18	.049	3/64	20	.9669	.284	.100	.133	.592
1½	16	.065	1/16	20	1.269	.373	.128	.171	.586
1½	14	.083	5/64	20	1.600	.470	.158	.211	.580
1½	11	.120	⅛	20	2.252	.662	.212	.282	.565
1½	10	.140	9/64	22-24	2.500*	.762	.237	.316	.558
1½	7	.188	3/16	22-24	3.230*	.987	.289	.385	.541
1¾	16	.065	1/16	20	1.490	.438	.208	.237	.688
1¾	14	.083	5/64	20	1.882	.553	.257	.294	.682
1¾	11	.120	⅛	20	2.660	.782	.348	.439	.667
2	16	.065	1/16	20	1.711	.503	.314	.314	.790
2	14	.083	5/64	20	2.164	.636	.391	.391	.783
2	11	.120	⅛	20	3.068	.902	.534	.534	.769
2	9	.145	9/64	22-24	3.510*	1.076	.621	.621	.760
2	7	.188	3/16	22-24	4.430*	1.363	.754	.754	.744
2	4	.250	¼	22-24	5.730*	1.750	.912	.912	.722
2½	16	.065	1/16	20	2.153	.633	.626	.501	.995
2½	14	.083	5/64	20	2.728	.802	.782	.626	.987
2½	11	.120	⅛	20	3.884	1.142	1.081	.865	.973
2½	7	.188	3/16	22-24	5.670*	1.739	1.559	1.247	.947
2½	4	.250	¼	22-24	7.290*	2.250	1.922	1.538	.924
3	16	.065	1/16	20	2.595	.763	1.096	.731	1.199
3	14	.083	5/64	20	3.293	.968	1.374	.916	1.191
3	11	.120	⅛	20 & 24	4.887	1.382	1.914	1.274	1.177
3	7	.180	3/16	20 & 24	6.903	2.109	2.793	1.862	1.151
3	4	.238	¼	24	8.940	2.750	3.495	2.330	1.127
3½	11	.120	⅛	24	5.800	1.622	3.093	1.767	1.381
3½	7	.180	3/16	24	8.129	2.484	4.558	2.605	1.355
4	11	.120	⅛	20 & 24	6.331	1.862	4.677	2.339	1.585
4	7	.180	3/16	20 & 24	9.350	2.859	6.944	3.472	1.558
4	4	.238	¼	24	12.18	3.750	8.828	4.414	1.534
5	7	.180	3/16	24	11.81†	3.610	13.986	5.595	1.693
5	4	.250	¼	24	15.40†	4.589	16.322	6.529	1.886
6	4	.250	¼	24	19.55†	5.750	31.745	10.582	2.325

*Hot Rolled Butt Welded Tubing (Square Pipe)
**Elyria High Carbon Structural Tubing
†Espro Structural Tubing

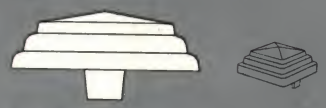
POST CAPS

CAP TYPE A



CAST IRON	POLISHED BRONZE	POLISHED ALUM.	SIZE
5615			1½" x 1½"
5620	5720	5820	2" x 2"
5625			2½" x 2½"
5630	5730	5830	3" x 3"
5635			3½" x 3½"
5640	5740	5840	4" x 4"
5650			5" x 5"
5660			6" x 6"
5632			3" x 2"
5642			4" x 2"
56425			4" x 2½"
5643		5843	4" x 3"
5652			5" x 2"
56525			5" x 2½"
5653			5" x 3"
5663	5763	5863	6" x 3"
5664		5864	6" x 4"
5683		5883	8" x 3"
5684	5784	5884	8" x 4"

CAP TYPE B



CAST IRON	SIZE
5230	3" x 3"
5235	3½" x 3½"
5240	4" x 4"

CAP TYPE C



CAST IRON	SIZE
5415	1½" x 1½"
5420	2" x 2"
5425	2½" x 2½"
5430	3" x 3"
5440	4" x 4"

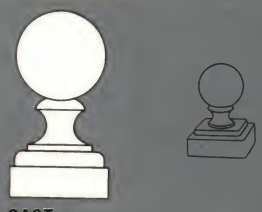
CAP TYPE W

Snug fit – does not require fastening



PRESSED STEEL	STAINLESS STEEL	SIZE
5930	5933	3" x 3"
5935		3½" x 3½"
5940	5944	4" x 4"

BALL CAP



CAST IRON	SIZE	BALL DIA.	HEIGHT
5320	2" x 2"	1 3/16"	3¾"
5325	2½" x 2½"	2⅛"	4⅛"
5330	3" x 3"	2 3/16"	4⅝"
5335	3½" x 3½"	2½"	5⅛"
5340	4" x 4"	2¾"	5½"

POST CAP



CAST IRON (Former No. 411)

5411 SIZE 1" x 1"

For 1" x 1" x .073" structural tubing.
Snug fit – does not require fastening.

BARS, SHAPES AND TUBING

HOT AND COLD ROLLED STEEL, STAINLESS STEEL

All items in stock for immediate shipment

COLD FINISHED STEEL SHAPES

COLD ROLLED ANGLES

20′ LENGTHS

EQUAL LEGS

SIZE	WT. LBS. PER FT.
½″ x ½″ x ⅛″	.38
⅝″ x ⅝″ x ⅛″	.48
¾″ x ¾″ x ⅛″	.59
1″ x 1″ x ⅛″	.80
1″ x 1″ x 3/16″	1.16
1¼″ x 1¼″ x ⅛″	1.01
1¼″ x 1¼″ x 3/16″	1.48
1½″ x 1½″ x ⅛″	1.23
1½″ x 1½″ x 3/16″	1.80
2″ x 2″ x ⅛″	1.65
2″ x 2″ x 3/16″	2.44

UNEQUAL LEGS

1″ x ⅝″ x ⅛″	.64
1¼″ x ¾″ x ⅛″	.80
1½″ x 1″ x ⅛″	1.01
2″ x 1″ x ⅛″	1.23

COLD ROLLED CHANNELS

20′ LENGTHS
*22′ LENGTHS

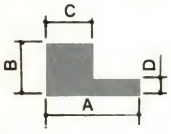
NO.	SIZE	WT. LBS. PER FT.
4730	½″ x ½″ x .093″	.40
4732	¾″ x ¾″ x .093″	.57
4734	1″ x 1″ x .109″	1.03
4744	1¼″ x 1¼″ x .109″	1.32
4750	1½″ x 1½″ x .109″	1.59
4752	2″ x 2″ x .125″	2.41
4735*	⅝″ x 5/16″ x .078″	.29
4736*	¾″ x ⅜″ x .083″	.40
4754	1½″ x 1″ x .109″	1.22
4759	1¾″ x 1⅛″ x .109″	1.40
4760	2″ x 1″ x .125″	1.59
4753	2⅜″ x 2 3/16″ x .156″	3.41

COLD FINISHED HALF ROUNDS

20′ LENGTHS

SIZE	WT. LBS. PER FT.
½″ x ¼″	.334
⅝″ x 5/16″	.552
¾″ x ⅜″	.751
1″ x ½″	1.335
1¼″ x ⅝″	2.086

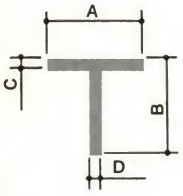
HOT ROLLED STEEL SHAPES



HOT ROLLED ANGLES

20′ LENGTHS

NO.	SIZE A	SIZE B	THICKNESS C	THICKNESS D	WT. LBS. PER FT.
4700	⅜″	⅜″	3/32″	3/32″	.19
4709	¾″	¾″	1/16″	1/16″	.39
4460	1″	9/16″	½″	3/16″	1.36



HOT ROLLED TEES

20′ LENGTHS

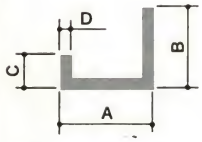
NO.	SIZE A	SIZE B	THICKNESS C	THICKNESS D	WT. LBS. PER FT.
4618	⅞″	9/16″	⅛″	¼″	.75
4619	25/32″	1″	⅛″	⅛″	.65



120° HOT ROLLED ANGLE

20′ LENGTHS

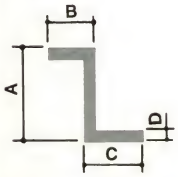
NO.	SIZE	WT. LBS. PER FT.
4639	1″ x 1″ x ⅛″	.72



HOT ROLLED CHANNELS

20′ LENGTHS

NO.	SIZE A	SIZE B	SIZE C	SIZE D	WT. LBS. PER FT.
4650	1″	⅞″	⅜″	⅛″	.86
4656	1⅜″	1″	13/32″	⅛″	1.27
4731	⅝″	⅝″	⅝″	3/32″	.47
4757	1 11/16″	¾″	¾″	⅛″	1.20
4758	1 9/16″	1″	1″	⅛″	1.34
4762	1½″	¾″	¾″	⅛″	1.17



HOT ROLLED ZEES

20′ LENGTHS

NO.	SIZE A	SIZE B	SIZE C	SIZE D	WT. LBS. PER FT.
4720	1⅜″	¾″	1 3/16″	⅛″	1.24
4721	1 3/16″	⅝″	¾″	⅛″	.94
4722	1″	½″	⅝″	⅛″	.74

STAINLESS STEEL SHAPES AND TUBING

TYPE 302 (18-8)
No. 2 bright mill finish except as noted.

ROLLED ANGLES

STAINLESS STEEL
20′ LENGTHS

SIZE	SIZE
½″ x ½″ x .062″	1″ x 1″ x .062″
⅝″ x ⅝″ x .062″	1¼″ x 1¼″ x .062″
¾″ x ¾″ x .062″	1½″ x 1½″ x .062″

ROLLED CHANNELS

STAINLESS STEEL
20′ LENGTHS
*22′ LENGTHS

SIZE	SIZE
½″ x ½″ x .062″	1″ x 1″ x .062″
⅝″ x 5/16″ x .078″*	1¼″ x ½″ x .062″
¾″ x ⅜″ x .062″	1½″ x ½″ x .062″
¾″ x ¾″ x .062″	2″ x ½″ x .062″
1″ x ½″ x .062″	

SQUARE TUBING

STAINLESS STEEL
20′ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
¾″ x ¾″	x .049″	.472
1″ x 1″	x .049″	.640
1″ x 1″	x .065″	.835
1¼″ x 1¼″	x .065″	1.058
1½″ x 1½″	x .065″	1.281
2″ x 2″	x .065″	1.728

RECTANGULAR TUBING

STAINLESS STEEL
20′ LENGTHS
*21′-1″ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
¾″ x 1½″	x .065″	.946
1″ x 1½″	x .065″	1.058
1″ x 2″	x .065″	1.281
1¼″ x 2½″	x .065″	1.616
1¾″ x 3″	x .065″*	2.062
1¾″ x 4″	x .065″*	2.509

ROUND TUBING

STAINLESS STEEL
20′ LENGTHS

SCHEDULE 5 PIPE SIZES POLISHED TO A NO. 4 FINISH (180 GRIT) AND MASKED

NOMINAL SIZE	O.D.	WALL THICKNESS	WT. LBS. PER FT.
1¼″	1.660″	.065″	1.110
1½″	1.900″	.065″	1.274

OVAL TUBING

STAINLESS STEEL
20′ LENGTHS

SIZE	WT. LBS. PER FT.
† 2″ x ½″ x .065″	.944

† NEW STOCK ITEM

BARS, SHAPES AND TUBING

ARCHITECTURAL BRONZE

All items in stock for immediate shipment



FLATS

BRONZE
SHARP CORNERS
16′ LENGTHS

SIZE	WT. LBS. PER FT.
1/8″ x 1/2″	.231
1/8″ x 5/8″	.289
1/8″ x 3/4″	.346
1/8″ x 1″	.461
1/8″ x 1 1/4″	.576
1/8″ x 1 1/2″	.690
1/8″ x 2″	.921
3/16″ x 1/2″	.346
3/16″ x 5/8″	.432
3/16″ x 3/4″	.518
3/16″ x 1″	.689
3/16″ x 1 1/4″	.870
3/16″ x 1 1/2″	1.040
3/16″ x 2″	1.382
3/16″ x 2 1/2″	1.728
3/16″ x 3″	2.075
3/16″ x 3 1/2″	2.555
1/4″ x 3/8″	.342
1/4″ x 1/2″	.456
1/4″ x 5/8″	.576
1/4″ x 3/4″	.691
1/4″ x 1″	.921
1/4″ x 1 1/4″	1.150
1/4″ x 1 1/2″	1.380
1/4″ x 2″	1.842
1/4″ x 2 1/2″	2.300
1/4″ x 3″	2.766
1/4″ x 4″	3.650
3/8″ x 1/2″	.684
3/8″ x 3/4″	1.040
3/8″ x 1″	1.380
3/8″ x 1 1/4″	1.730
3/8″ x 1 1/2″	2.070
3/8″ x 2″	2.760
3/8″ x 2 1/2″	3.422
3/8″ x 3″	4.106
1/2″ x 3/4″	1.369
1/2″ x 1″	1.840
1/2″ x 1 1/4″	2.281
1/2″ x 1 1/2″	2.760
1/2″ x 2″	3.680
1/2″ x 2 1/2″	4.600
1/2″ x 3″	5.475



SQUARES

BRONZE
SHARP CORNERS
16′ LENGTHS

SIZE	WT. LBS. PER FT.
5/16″ x 5/16″	.360
3/8″ x 3/8″	.518
1/2″ x 1/2″	.922
5/8″ x 5/8″	1.441
3/4″ x 3/4″	2.075
1″ x 1″	3.689
1 1/4″ x 1 1/4″	5.76
1 1/2″ x 1 1/2″	8.28



ROUNDS

BRONZE
16′ LENGTHS

DIA.	WT. LBS. PER FT.
3/8″	.407
1/2″	.723
5/8″	1.13
3/4″	1.63
1″	2.89
1 1/4″	4.52
1 1/2″	6.51



ANGLES

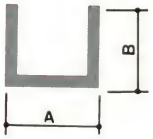
BRONZE
SHARP CORNERS
20′ LENGTHS
*16′ LENGTHS

EQUAL LEGS

SIZE	WT. LBS. PER FT.
1/2″ x 1/2″ x 1/8″	.42
5/8″ x 5/8″ x 1/8″	.52
3/4″ x 3/4″ x 1/8″	.64
1″ x 1″ x 1/8″	.89
1″ x 1″ x 3/16″	1.30
1 1/4″ x 1 1/4″ x 1/8″	1.09
1 1/2″ x 1 1/2″ x 1/8″	1.35
1 1/2″ x 1 1/2″ x 1/4″	2.52
2″ x 2″ x 1/8″	1.79
† 2″ x 2″ x 3/16″	2.61
2″ x 2″ x 1/4″	3.37*
2 1/2″ x 2 1/2″ x 1/4″	4.33*
3″ x 3″ x 1/4″	5.25*

UNEQUAL LEGS

3/4″ x 3/8″ x 1/8″	.45
1″ x 1/2″ x 1/8″	.65
1″ x 3/4″ x 1/8″	.75
1 1/4″ x 3/4″ x 1/8″	.88
1 1/2″ x 1″ x 1/8″	1.10
2″ x 1″ x 1/8″	1.33
† 3″ x 2″ x 1/4″	4.32*
4″ x 2 1/2″ x 1/4″	5.70*

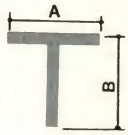


CHANNELS

BRONZE
SHARP CORNERS
20′ LENGTHS
*16′ LENGTHS

A	B	THICKNESS	WT. LBS. PER FT.
1/2″	1/2″	3/32″	.44
5/8″	5/16″	3/32″	.36*
3/4″	3/8″	1/8″	.57
3/4″	3/4″	1/8″	.90
1″	1/2″	1/8″	.85
1″	3/4″	1/8″	1.04
1″	1″	1/8″	1.25
1 1/4″	1/2″	1/8″	.91
1 1/4″	5/8″	1/8″	1.06
1 1/4″	1 1/4″	1/8″	1.60
1 1/2″	1/2″	1/8″	1.02
1 1/2″	5/8″	1/8″	1.12
† 1 1/2″	1 1/2″	1/8″	1.94
2″	3/4″	1/8″	1.47
2 1/4″	7/8″	1/8″	1.75

† NEW STOCK ITEM



TEES

BRONZE
SHARP CORNERS
20′ LENGTHS

A	B	THICKNESS	WT. LBS. PER FT.
3/4″	3/4″	1/8″	.64
1″	1″	1/8″	.89
1 1/2″	1 1/2″	3/16″	1.94
2″	2″	3/16″	2.61



SQUARE TUBING

BRONZE
SHARP CORNERS
16′ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
1/2″ x 1/2″	x .065″	.43
5/8″ x 5/8″	x .065″	.55
3/4″ x 3/4″	x .065″	.68
7/8″ x 7/8″	x .065″	.76
1″ x 1″	x .065″	.92
1 1/4″ x 1 1/4″	x .065″	1.13
1 1/4″ x 1 1/4″	x .083″	1.46
1 1/2″ x 1 1/2″	x .083″	1.79
1 3/4″ x 1 3/4″	x .083″	2.07
2″ x 2″	x .083″	2.53
2 1/2″ x 2 1/2″	x .083″	2.99
3″ x 3″	x .083″	3.60



RECTANGULAR TUBING

BRONZE
SHARP CORNERS
16′ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
1″ x 1/2″	x .065″	.65
1 1/2″ x 3/4″	x .065″	1.02
1 1/2″ x 1″	x .083″	1.50
2″ x 1″	x .083″	1.78
2 1/2″ x 1 1/4″	x .083″	2.15
3″ x 1 1/4″	x .083″	2.43
3″ x 1 1/2″	x .083″	2.68
3″ x 1 3/4″	x .083″	2.83
3″ x 2″	x .083″	3.05
4″ x 1 3/4″	x .083″	3.46
4 1/2″ x 1 3/4″	x .083″	3.77
5″ x 1 3/4″	x .083″	4.08



ROUND TUBING

BRONZE
STANDARD PIPE SIZES
20′ LENGTHS

NOMINAL SIZE	O.D.	WALL THICKNESS	WT. LBS. PER FT.
1 1/4″	1.660″	.140″	2.63
1 1/2″	1.900″	.145″	3.13



OVAL TUBING

BRONZE
16′ LENGTHS

SIZE	THICKNESS	WT. LBS. PER FT.
† 2″ x 1/2″	x .050″	.820

All sizes can be furnished cut to specified lengths when required.



All items in stock for immediate shipment

Upon request, any size of aluminum will be shipped to alumiliting plant for customer's account.

ALLOY 6063-T5
SUITABLE FOR ALUMILITING.

FLATS

SHARP CORNERS
16′ LENGTHS

SIZE	WT. LBS. PER FT.
1/8″ x 1/2″	.075
1/8″ x 5/8″	.094
1/8″ x 3/4″	.113
1/8″ x 1″	.150
1/8″ x 1 1/8″	.169
1/8″ x 1 1/4″	.187
1/8″ x 1 1/2″	.226
1/8″ x 1 3/4″	.263
1/8″ x 2″	.300
1/8″ x 3″	.450
1/8″ x 4″	.600
3/16″ x 1/2″	.113
3/16″ x 3/4″	.169
3/16″ x 1″	.226
3/16″ x 1 1/4″	.282
3/16″ x 1 1/2″	.337
3/16″ x 2″	.450
3/16″ x 2 1/2″	.564
1/4″ x 1/2″	.150
1/4″ x 5/8″	.187
1/4″ x 3/4″	.224
1/4″ x 1″	.300
1/4″ x 1 1/4″	.374
1/4″ x 1 1/2″	.450
1/4″ x 1 3/4″	.525
1/4″ x 2″	.600
1/4″ x 2 1/2″	.750
1/4″ x 3″	.900
1/4″ x 4″	1.200
1/4″ x 5″	1.500
1/4″ x 6″	1.800
3/8″ x 1/2″	.224
3/8″ x 5/8″	.281
3/8″ x 3/4″	.338
3/8″ x 1″	.450
3/8″ x 1 1/4″	.563
3/8″ x 1 1/2″	.674
3/8″ x 2″	.900
3/8″ x 2 1/2″	1.126
3/8″ x 3″	1.350
1/2″ x 3/4″	.450
1/2″ x 1″	.600
1/2″ x 1 1/4″	.750
1/2″ x 1 1/2″	.900
1/2″ x 2″	1.200
1/2″ x 2 1/2″	1.500
1/2″ x 3″	1.800
5/8″ x 1″	.750
5/8″ x 2″	1.500
5/8″ x 3″	2.250
3/4″ x 1″	.900
3/4″ x 1 1/2″	1.350
3/4″ x 2″	1.800
3/4″ x 2 1/2″	2.250
3/4″ x 3″	2.700
1″ x 1 1/2″	1.800
1″ x 2″	2.400
1″ x 2 1/2″	3.000
1″ x 3″	3.600

SQUARES

SHARP CORNERS
16′ LENGTHS
*13′-1″ LENGTHS

SIZE	WT. LBS. PER FT.
5/16″ x 5/16″	.116
3/8″ x 3/8″	.169
1/2″ x 1/2″	.300
5/8″ x 5/8″	.468
3/4″ x 3/4″	.674
1″ x 1″	1.200
1 1/4″ x 1 1/4″	1.875
1 1/2″ x 1 1/2″	2.700
1 3/4″ x 1 3/4″	3.676*

BARS

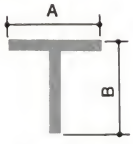
ROUND CORNERS
20′ LENGTHS

NO.	SIZE	CORNER RADIUS	WT. LBS. PER FT.	
6423	1 1/4″ x 1 1/4″	3/32″	1.875	Sq. Bar
6988	1/2″ x 2″	1/4″	1.138	Oval Bar
6939	3/4″ x 2 1/2″	3/16″	2.214	Rect. Bar
6986	3/4″ x 3″	1/8″	2.684	Rect. Bar
6424	1 1/4″ x 2 3/4″	3/32″	4.125	Rect. Bar

ROUNDS

16′ LENGTHS

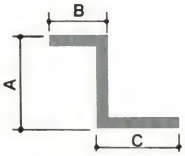
DIA.	WT. LBS. PER FT.
3/8″	.132
1/2″	.235
5/8″	.368
3/4″	.530
1″	.942
1 1/4″	1.472
1 1/2″	2.120



TEES

SHARP CORNERS
16′ LENGTHS

A	B	THICKNESS	WT. LBS.
3/4″	3/4″	1/8″	.206
3/4″	1 1/4″	1/8″	.280
1″	3/4″	1/8″	.244
1″	1″	1/8″	.281
1 1/8″	1 1/8″	1/8″	.319
1 1/4″	7/8″	1/8″	.300
2″	2″	3/16″	.856



ZEES

SHARP CORNERS
16′ LENGTHS

A	B	C	THICKNESS	WT. LBS. PER FT.
3/4″	3/4″	3/4″	1/8″	.300
7/8″	3/4″	3/4″	1/8″	.319
1″	5/8″	7/8″	1/8″	.337

ANGLES

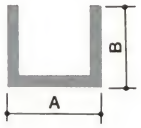
SHARP CORNERS
16′ LENGTHS

EQUAL LEGS

SIZE	WT. LBS. PER FT.
1/2″ x 1/2″ x 1/16″	.070
1/2″ x 1/2″ x 1/8″	.131
5/8″ x 5/8″ x 1/8″	.168
3/4″ x 3/4″ x 1/16″	.108
3/4″ x 3/4″ x 1/8″	.206
1″ x 1″ x 1/16″	.145
1″ x 1″ x 1/8″	.281
1″ x 1″ x 3/16″	.408
1 1/4″ x 1 1/4″ x 1/8″	.356
1 1/4″ x 1 1/4″ x 3/16″	.519
1 1/2″ x 1 1/2″ x 1/8″	.431
1 1/2″ x 1 1/2″ x 3/16″	.633
1 1/2″ x 1 1/2″ x 1/4″	.824
1 3/4″ x 1 3/4″ x 1/8″	.506
2″ x 2″ x 1/8″	.581
2″ x 2″ x 3/16″	.857
2″ x 2″ x 1/4″	1.124
3″ x 3″ x 1/8″	.881

UNEQUAL LEGS

1″ x 1/2″ x 1/8″	.206
1″ x 3/4″ x 1/8″	.244
1 1/4″ x 1/2″ x 1/8″	.244
1 1/2″ x 3/4″ x 1/8″	.319
1 1/2″ x 1″ x 1/8″	.356
2″ x 1″ x 1/8″	.431
2″ x 1″ x 3/16″	.633
3″ x 1″ x 1/8″	.581
3 1/2″ x 1 1/4″ x 1/8″	.694



CHANNELS

SHARP CORNERS
16′ LENGTHS
*20′ LENGTHS

A	B	THICKNESS	WT. LBS.
3/8″	3/8″	.109″	.120
1/2″	3/8″	1/8″	.150
1/2″	1/2″	3/32″	.148
1/2″	3/4″	1/8″	.263
5/8″	5/8″	1/8″	.244
5/8″	1″	1/8″	.356
3/4″	3/8″	1/8″	.187
3/4″	1/2″	1/8″	.225
3/4″	3/4″	1/8″	.300
1″	1/2″	1/8″	.263*
1″	1″	1/8″	.413
1 1/4″	1/2″	1/8″	.300*
1 1/4″	5/8″	1/8″	.337*
1 1/4″	3/4″	1/8″	.374*
1 1/4″	1 1/4″	1/8″	.526
1 1/2″	1/2″	1/8″	.337*
1 1/2″	5/8″	1/8″	.374*
1 1/2″	1 1/2″	1/8″	.637
1 3/4″	1/2″	1/8″	.374
1 3/4″	3/4″	1/8″	.450
1 3/4″	1″	1/8″	.524
2″	1/2″	1/8″	.413
2″	1″	1/8″	.564*
2″	2″	1/8″	.863
2 1/4″	7/8″	1/8″	.563
3″	1/2″	1/8″	.563
3″	1″	1/8″	.713
5″	2″	3/16″	1.940

BARS, SHAPES, TUBING (CONTINUED)

ALUMINUM

All items in stock for immediate shipment

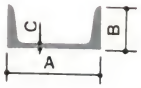
STRUCTURAL SHAPES

ALLOY 6061-T6 25′ LENGTHS



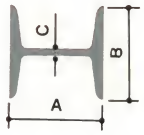
STRUCTURAL ANGLES
EQUAL LEGS

SIZE	WT. LBS. PER FT.
2″ x 2″ x 3/8″	1.60
2½″ x 2½ x ¼″	1.41
3″ x 3″ x ¼″	1.68
3″ x 3″ x 3/8″	2.47
4″ x 4″ x ¼″	2.28
4″ x 4″ x 3/8″	3.36



STRUCTURAL CHANNELS

DEPTH A	FLANGE B	WEB C	WT. LBS. PER FT.
3″	1.410″	.170″	1.42
4″	1.580″	.180″	1.84
5″	1.750″	.190″	2.31
6″	1.945″	.225″	3.00



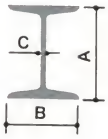
STRUCTURAL H-COLUMNS

DEPTH A	FLANGE B	WEB C	WT. LBS. PER FT.
4″	4″	.313″	4.70



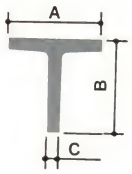
STRUCTURAL ANGLES
UNEQUAL LEGS

SIZE	WT. LBS. PER FT.
2½″ x 2″ x ¼″	1.25
3″ x 2″ x ¼″	1.40
3½″ x 2½″ x ¼″	1.68
4″ x 3″ x ¼″	1.99
4″ x 3″ x 3/8″	2.92



STRUCTURAL I-BEAMS

DEPTH A	FLANGE B	WEB C	WT. LBS. PER FT.
3″	2.330″	.170″	1.96
4″	2.660″	.190″	2.64
5″	3.000″	.210″	3.42
6″	3.330″	.230″	4.30



STRUCTURAL TEES

DEPTH A	FLANGE B	WEB C	WT. LBS. PER FT.
2″	2″	¼″	1.25

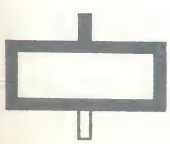
ALUMINUM TUBING

ALLOY 6063- T5 , EXCEPT AS NOTED.
SUITABLE FOR ALUMILITING.



SQUARE TUBING
SHARP CORNERS
21′-1″ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
½″ x ½″	x .062″	.130
5/8″ x 5/8″	x .062″	.167
¾″ x ¾″	x .062″	.205
¾″ x ¾″	x .125″	.374
1″ x 1″	x .062″	.278
1″ x 1″	x .125″	.525
1¼″ x 1¼″	x .078″	.438
1¼″ x 1¼″	x .125″	.675
1½″ x 1½″	x .078″	.532
1½″ x 1½″	x .125″	.825
1¾″ x 1¾″	x .125″	.975
2″ x 2″	x .078″	.720
2″ x 2″	x .125″	1.124
2½″ x 2½″	x .125″	1.424
3″ x 3″	x .125″	1.724
4″ x 4″	x .125″	2.324



TUBULAR MULLIONS
SHARP CORNERS
21′-1″ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
1¾″ x 4″	x .125″	Single fin 1.724
1¾″ x 4″	x .125″	Double fin. 1.800



RECTANGULAR TUBING
SHARP CORNERS
21′-1″ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
½″ x 1″	x .125″	.374
¾″ x 1½″	x .125″	.588
1″ x 1½″	x .125″	.661
1″ x 2″	x .125″	.825
1¼″ x 2½″	x .125″	1.050
1½″ x 2″	x .125″	.967
1½″ x 2½″	x .125″	1.124
1½″ x 6″	x .125″	2.135*
1¾″ x 2¼″	x .125″	1.125
1¾″ x 3″	x .125″	1.323
1¾″ x 3½″	x .125″	1.470
1¾″ x 4″	x .125″	1.650
1¾″ x 4½″	x .125″	1.765
1¾″ x 5″	x .125″	1.910
2″ x 3″	x .125″	1.395
2″ x 5″	x .125″	2.025

*ALLOY 3003-F

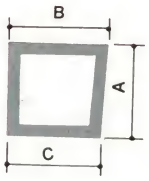
ROUND CORNERS
20′ LENGTHS

1¼″ x 2¾″ x .125″	1.123



RECTANGULAR TUBING
ALUMILITE FINISH
SHARP CORNERS
21′-1″ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
1¾″ x 3″	x .125	1.323
1¾″ x 4″	x .125	1.650
1¾″ x 5″	x .125	1.910
2″ x 5″	x .125	2.025



BEVEL FACE TUBING
SHARP CORNERS
21′-1″ LENGTHS

A	B	C	WALL THICKNESS	WT. LBS. PER FT.
1¾″	1.859″	1¾″	.125″	1.090
1¾″	5″	4⅞″	.125″	1.900



ROUND TUBING
THIN WALL
ALLOY 3003-H14
12′ LENGTHS

SIZE	WALL THICKNESS	WT. LBS. PER FT.
1″ O.D.	x .058″	.202
1¼″ O.D.	x .058″	.256
1½″ O.D.	x .065″	.329



ROUND TUBING
STANDARD PIPE SIZES.
20′ LENGTHS

NOMINAL SIZE	O.D.	WALL THICKNESS	WT. LBS. PER FT.
¾″	1.050″	.113″	.391
1″	1.315″	.133″	.581
1¼″	1.660″	.140″	.785
1½″	1.900″	.145″	.940
2″	2.375″	.154″	1.264

MOULDINGS AND FUNCTIONAL SHAPES

Scale ½ size
20′ Lengths
except as noted

All items in stock for immediate shipment

For complete listing of stock mouldings, see Catalog No. 8

COVE MOULDINGS AND GLASS FRAMING SECTIONS



6950 ALUM. .228 lbs. per ft.



		Wt. #/′	A	B
6101	BRONZE	.32	⅜"	⅜"
6951	ALUM.	.106	⅜"	⅜"
4101	STEEL	.28	⅜"	⅜"
6102	BRONZE	.50	½"	½"
6952	ALUM.	.166	½"	½"
4102	STEEL	.40	½"	½"
4103	STEEL	.59	9/16"	9/16"
4110	STEEL	.72	⅝"	⅝"



		Wt. #/′	A	B
6105	BRONZE	.67	¾"	¾"
6955	ALUM.	.260	¾"	¾"
4104	STEEL	.63	11/16"	11/16"
4105	STEEL	.84	¾"	¾"
4109	STEEL	.93	⅞"	⅞"



		Wt. #/′	A
4106	STEEL	.56	⅞"
4107	STEEL	.67	1"
4108	STEEL	1.05	1 3/16"



4120 STEEL 1.07 lbs. per ft.



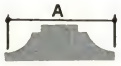
		Wt. #/′	A
4258	STEEL	.47	9/16"
4257	STEEL	.64	¾"
4256	STEEL	1.23	1"



		Wt. #/′	A
6121	BRONZE	.60	¾"
4121	STEEL	.49	¾"



		Wt. #/′	A
6136	BRONZE	.60	¾"
6936	ALUM.	.168	¾"



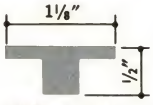
		Wt. #/′	A
6474	BRONZE	.99	1⅛"
4474	STEEL	.96	1⅛"



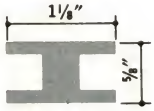
		Wt. #/′	A
6473	BRONZE	.76	¾"
4473	STEEL	.71	¾"



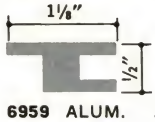
6470 BRONZE .93 lbs. per ft.



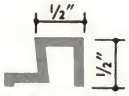
6958 ALUM. .338 lbs. per ft.



6960 ALUM. .507 lbs. per ft.



6959 ALUM. .394 lbs. per ft.



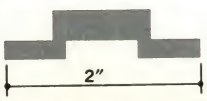
6953 ALUM. .183 lbs. per ft.



		Wt. #/′	A
6138	BRONZE	1.26	2"
6938	ALUM.	.439	2"



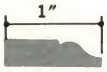
		Wt. #/′	A
6130	BRONZE	.700	15/16"
4130	STEEL	.650	15/16"



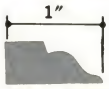
6140 BRONZE 1.97 lbs. per ft.



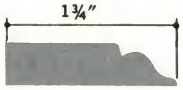
4123 STEEL .47 lbs. per ft.



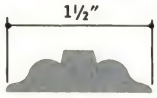
4450 STEEL .70 lbs. per ft.



4451 STEEL 1.05 lbs. per ft.



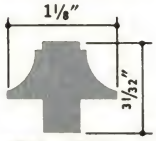
4461 STEEL 2.17 lbs. per ft.



4471 STEEL 1.41 lbs. per ft.



4620 STEEL 1.63 lbs. per ft.
6620 BRONZE 1.71 lbs. per ft.



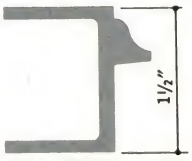
4621 STEEL 1.96 lbs. per ft.
6621 BRONZE 2.06 lbs. per ft.



4602 STEEL 1.47 lbs. per ft.



4603 STEEL 1.13 lbs. per ft.



4615 STEEL 2.05 lbs. per ft.



4616 STEEL 1.60 lbs. per ft.



4617 STEEL 1.36 lbs. per ft.



		Wt. #/′	A
4404	STEEL	.25	½"
4401	STEEL	.37	11/16"
4403	STEEL	.82	1"

PLATE STRINGER MOULDINGS



4157 STEEL .75 lbs. per ft.



4151 STEEL .93 lbs. per ft.



4156 STEEL 1.00 lbs. per ft.



4150 STEEL .64 lbs. per ft.



4152 STEEL 1.35 lbs. per ft.



4153 STEEL 1.33 lbs. per ft.



4265 STEEL .93 lbs. per ft.



4172 STEEL 1.70 lbs. per ft.



4171 STEEL 2.08 lbs. per ft.

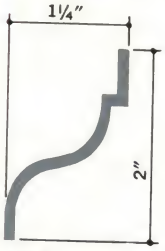


4154 STEEL 1.34 lbs. per ft.

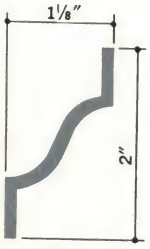
CHANNEL STRINGER MOULDINGS



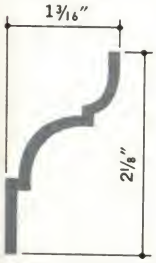
4300 STEEL .70 lbs. per ft.



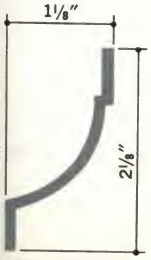
4304 STEEL .97 lbs. per ft.



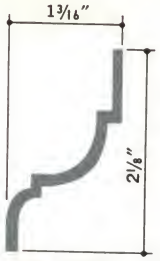
4305 STEEL .98 lbs. per ft.



4303 STEEL 1.15 lbs. per ft.

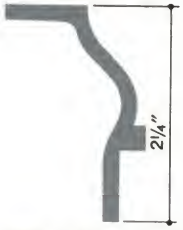


4312 STEEL 1.05 lbs. per ft.



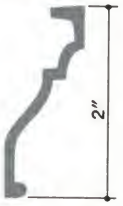
4302 STEEL 1.15 lbs. per ft.

WALL STRINGER MOULDING



4226 STEEL 1.90 lbs. per ft.

BENT CHANNEL STRINGER MOULDINGS

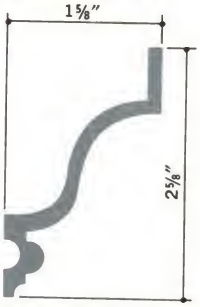


4159 STEEL 1.18 lbs. per ft.



4173 STEEL 1.17 lbs. per ft.

MISCELLANEOUS MOULDINGS



4354 STEEL 1.98 lbs. per ft.



4203 STEEL .58 lbs. per ft.



		Wt. #/′	A
4141	STEEL	.74	1⅜"
4140	STEEL	1.17	2"



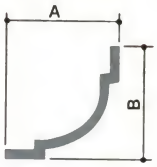
4144 STEEL .92 lbs. per ft.



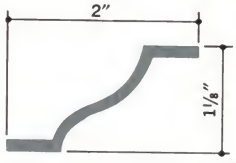
4201 STEEL .40 lbs. per ft.



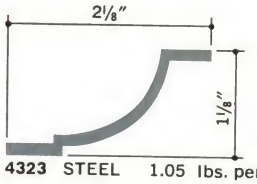
4208 STEEL .31 lbs. per ft.



		Wt. #/′	A	B
4320	STEEL	.74	1³⁄₁₆"	1³⁄₁₆"
4310	STEEL	1.00	1⁹⁄₁₆"	1⁹⁄₁₆"



4322 STEEL .98 lbs. per ft.

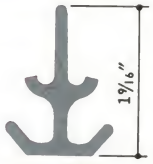


4323 STEEL 1.05 lbs. per ft.

SKYLIGHT BARS



4630 STEEL 1.25 lbs. per ft.

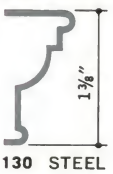


4631 STEEL 1.70 lbs. per ft.

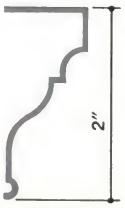
COLD ROLLED STEEL MOULDINGS NO. 22 GAUGE



696 STEEL



130 STEEL



224 STEEL

DOOR EDGINGS



16′ LENGTHS

		Wt. #/′	A
6647	BRONZE	.64	1⅝"
6947	ALUM.	.384	1⅝"



16′ LENGTHS

6648 BRONZE 1.10 lbs. per ft



16′ LENGTHS

		Wt. #/′	A
6642	BRONZE	.88	1²⁵⁄₃₂"
6944	ALUM.	.438	1⅞"



16′ LENGTHS

		Wt. #/′	A
6643	BRONZE	.84	1²⁵⁄₃₂"
6940	ALUM.	.431	1⅞"



16′ LENGTHS

6640 BRONZE .98 lbs. per ft.



16′ LENGTHS

		Wt. #/′	A
6641	BRONZE	.96	1²⁵⁄₃₂"
6941	ALUM.	.431	1⅞"



6646 BRONZE .67 lbs. per ft.

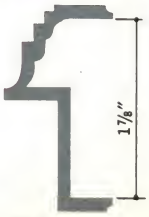


6645 BRONZE .79 lbs. per ft.



16′ LENGTHS

6946 ALUM. .209 lbs. per ft.

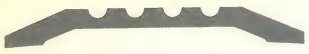


16′ LENGTHS

6945 ALUM. .528 lbs. per ft.

SADDLES AND NOSINGS

DOOR SADDLES



NO.		WT. LBS. PER FT.	WIDTH	HGT.
4510*	BRONZE	1.18	2½"	¼"
6910*	ALUM.	.365	2½"	¼"
6914*	ALUM.	.476	3"	¼"
4524	BRONZE	1.82	3"	⅜"
4504	STEEL	2.45	3"	½"
6924	ALUM.	.721	3"	½"
4503	STEEL	2.90	4"	½"
4523	BRONZE	2.65	4"	½"
6923	ALUM.	1.05	4"	½"
6926	ALUM.	.829	4"	½"
4516*	BRONZE	1.90	4"	½"
4521	BRONZE	3.08	4½"	½"
4522	BRONZE	3.32	5"	½"
6922	ALUM.	1.27	5"	½"
6918	ALUM.	1.00	5"	½"
4501	STEEL	4.86	5½"	⅝"
4520	BRONZE	4.10	6"	⅝"
6920	ALUM.	1.53	6"	⅝"
6921	ALUM.	1.23	6"	½"
6925	ALUM.	1.76	7"	½"
4500	STEEL	5.65	7"	⅝"
4525	BRONZE	5.50	7"	⅝"
6919	ALUM.	1.80	7½"	½"

*FURNISHED WITH SMOOTH TOP

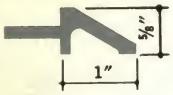
DOOR SADDLE SECTIONS



NO.		WT. LBS. PER FT.	WIDTH	HGT.
4511	BRONZE	2.73	3½"	⅝"
4512	BRONZE	3.38	4½"	⅝"
4513	BRONZE	3.80	5"	⅝"

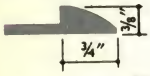
BEVEL END SECTIONS

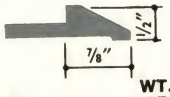
for assembled door saddles





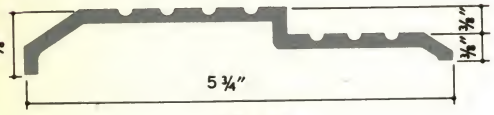
NO.		WT. LBS. PER FT.
4237	STEEL	1.09
4527	BRONZE	1.48
6927	ALUM.	.45





NO.		WT. LBS. PER FT.	NO.		WT. LBS. PER FT.
4528	BRONZE	1.09	4526	BRONZE	1.35

ROOF DOOR SADDLES



NO.		WT. LBS. PER FT.
4597	BRONZE	4.32
6997	ALUM.	1.45

WEATHERSTRIP DOOR SADDLES



NO.		WT. LBS. PER FT.	WIDTH	HGT.
6990	ALUM.	.595	3½"	9/16"
4590	BRONZE	2.19	3½"	⅝"
4591	BRONZE	2.05	4⅛"	9/16"
6991	ALUM.	.689	4¼"	9/16"
4593	BRONZE	3.28	4½"	¾"
4594	BRONZE	2.50	5"	⅞"



NO.		WT. LBS. PER FT.	WIDTH	HGT.
6995	ALUM.	.661	3½"	⅞"
4596	BRONZE	2.25	4¼"	⅞"
6996	ALUM.	.760	4¼"	⅞"



4598	BRONZE	.620	1⅛"	9/32"
6998	ALUM.	.180	1¼"	9/32"

FLAT FLUTED SECTIONS

for assembled saddles and expansion joints



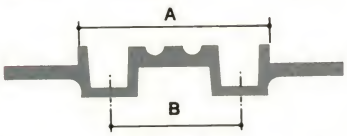
NO.		WT. LBS. PER FT.	WIDTH
4566	BRONZE	.720	1"
4558	BRONZE	1.08	1½"
6970	ALUMINUM	.361	1½"
4540	STEEL	1.03	1½"
5558	NICKEL SILVER	1.08	1½"
4557	BRONZE	1.48	2"
6971	ALUMINUM	.482	2"
4541	STEEL	1.37	2"
4556	BRONZE	1.84	2½"
4542	STEEL	1.71	2½"
4555	BRONZE	2.23	3"
6973	ALUMINUM	.723	3"
4543	STEEL	2.05	3"
4554	BRONZE	2.55	3½"
4544	STEEL	2.40	3½"
4553	BRONZE	2.89	4"
6975	ALUMINUM	.964	4"
4545	STEEL	2.73	4"
4553-Q	BRONZE	3.20	4¼"
4552	BRONZE	3.29	4½"
4546	STEEL	3.08	4½"
4551	BRONZE	3.57	5"
4550	BRONZE	4.05	5½"
4559	BRONZE	4.55	6⅛"

GROOVED SECTIONS

for assembled door and elevator saddles



NO.		WT. LBS. PER. FT.
4584	STEEL	1.65
4585	BRONZE	1.68

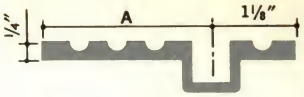


NO.		WT. LBS. PER FT.	A	B
4576	STEEL	3.20	2 5/16"	1½"
4582	BRONZE	3.71	2 5/16"	1½"
4577	STEEL	3.80	2 5/16"	1¾"
4581	BRONZE	3.77	2 5/16"	1¾"
4578	STEEL	3.78	2 1 3/16"	2"
4580	BRONZE	4.10	2 1 3/16"	2"

ELEVATOR CAR SADDLES



NO.		A	WT. LBS. PER FT.
4564	BRONZE	2¼"	4.60
4579	BRONZE	2⅞"	5.09
6964	ALUMINUM	2¼"	1.25
6979	ALUMINUM	2⅞"	1.44
5564	NICKEL SILVER	2¼"	5.10



		A	WT. LBS. PER FT.
4563	BRONZE	2¼"	2.85
4569	BRONZE	2⅞"	3.55
6963	ALUMINUM	2¼"	.85
6969	ALUMINUM	2⅞"	1.08
5563	NICKEL SILVER	2¼"	3.15



4567	BRONZE	1.04
6967	ALUMINUM	.314
5567	NICKEL SILVER	1.04

INSERT SECTIONS



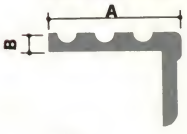
NO.		WT. LBS. PER FT.
4588	BRONZE	1.00
4587	STEEL	1.00

GALVANIZED CURB BAR

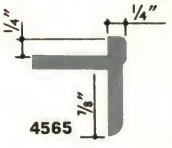


4245 STEEL

NOSINGS FOR STEPS AND ELEVATOR SADDLES



NO.		WT. LBS. PER FT.	A	B
4560	BRONZE	2.45	2¼"	¼"
4561	BRONZE	2.05	1¾"	¼"

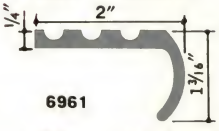


4565

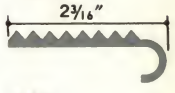


4568

4565	BRONZE	1.67
4568	BRONZE	.700



6961



4508

6961	ALUMINUM	.722
4508	STEEL	1.34



4231



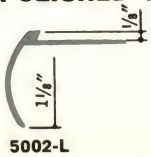
4232



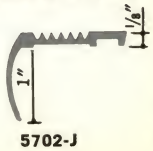
6632

		WT. lb./ft.	A	B
4231	STEEL	1.68	2 1/16"	1 3/16"
4232	STEEL	2.25	3"	1 1/16"
6632	BRONZE	1.50	2 3/16"	1 1/16"

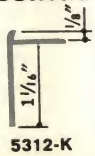
POLISHED ALUMINUM NOSINGS



5002-L



5702-J



5312-K

Braun

A.I.A. File No. 15

ARCHITECTURAL METALS AND SUPPLIES

"SERVICE IS OUR BEST SALESMAN . . . . . SINCE 1887"

Specializing in furnishing stock products in Steel, Malleable Iron, Aluminum and Architectural Bronze, including Treillage, Railing Materials, Castings, Bars, Tubing, Mouldings and Ornaments.

All materials are sold to the architectural metal trade for fabrication. No fabrication or erection is done by this Company.

J. G. Braun Company

EST. 1887

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Treillage and Railing Castings

BRAUN ornamental designs and castings are considered the finest produced. Because of their superior finish, they may be used exactly as supplied in the most discriminating job. Stocks are carried in Skokie and New York for immediate delivery.



9973
7¾" x 7¾"



9972
16" x 16"



9995
14" x 18"



9996
8½" x 8½"



9971
20" x 7¾"
Baroness Design

REVERSIBLE
DOUBLE FACED
MALLEABLE
IRON



9968 28" x 8½"
AMERICAN BEAUTY DESIGN
Design Patent #185,125



9997 28" x 8½"
SUNFLOWER DESIGN
Design Patent #184,707

NOTE:
Suggested Framework for Treillage—
1" x 1" x .073"
(15 Gauge)
Hot Rolled Steel Tubing



9994
21½" x 8½"
Wistaria Design

A.I.A. File No. 15

SCALE—1½" = 1'-0"

Measurements Approximate

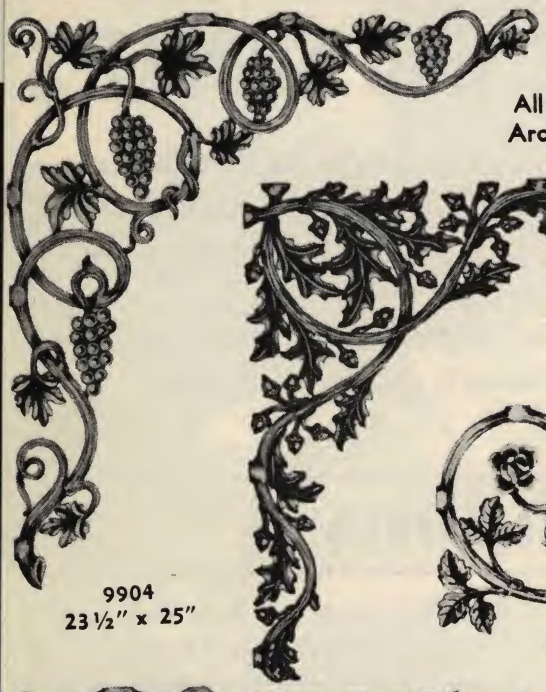
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BRAUN QUALITY TREILLAGE

DOUBLE FACED REVERSIBLE MALLEABLE IRON

All castings shown can also be furnished in Architectural Bronze or Aluminum on request.

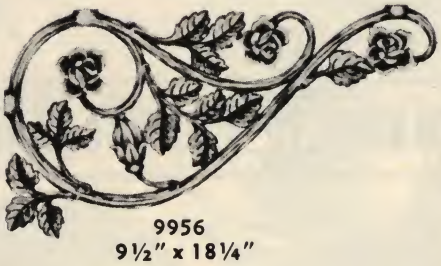
- Original in design
- The finest Quality Ornamental casting made today
- Supplied ready for installation
- No filing, grinding or fitting are necessary
- Malleable iron has greater corrosive resistance than gray or cast iron.



9904
23½" x 25"



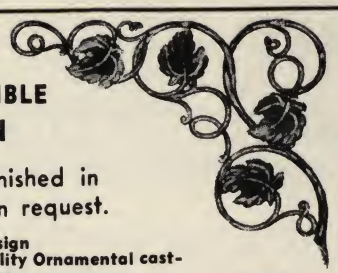
9948
19⅞" x 19⅞"



9956
9½" x 18¼"



9960
14¼" x 18"



9999
10¼" x 13"



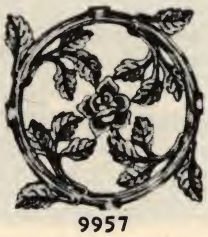
9998
32¼" x 8½"
Grape Leaf Design



9905
8½" x 8½"



9949
8½" x 8½"



9957
8¼" x 8¼"



9981
19" x 11"



9961
8½" x 8½"



9919
7¼" x 7¼"



9903
31¼" x 8½"
Grape Design



9947
31¾" x 8½"
Acorn Design
Design Patent #D-178,760



9955 32" x 8¼"
Rose Design



9980 32" x 8"
Modern Leaf Design
Design Patent #185,121



9959
32¼" x 8½"
Ivy Design



9918
28" x 5½"
Florette Design

SCALE—1½" = 1'-0"
Measurements Approximate

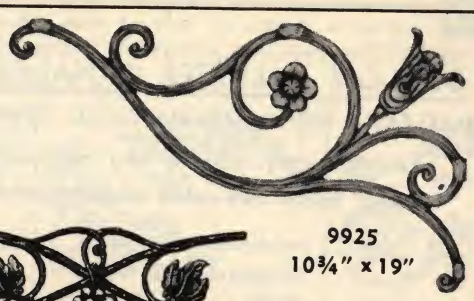
J.G. Braun Company

Skokie, Ill. EST. 1887 New York, N. Y.

BRAUN SUPERIOR CASTINGS ARE THE RESULT OF ——

- HAND CARVED ORIGINAL WOOD PATTERNS— BY SKILLED CRAFTSMEN
- CAST IN MOST MODERN EQUIPPED FOUNDRY
- PRECISION ALUMINUM PLATE PATTERNS HAND FINISHED TO THE FINEST DETAIL

NOTE: Suggested Framework for Treillage— 1" x 1" x .073" (15 Gauge) Hot Rolled Steel Tubing



9925
10¾" x 19"



9926
7¼" x 7¼"



9927
7¼" x 7½"



9944 6" x 14"
Grape Design

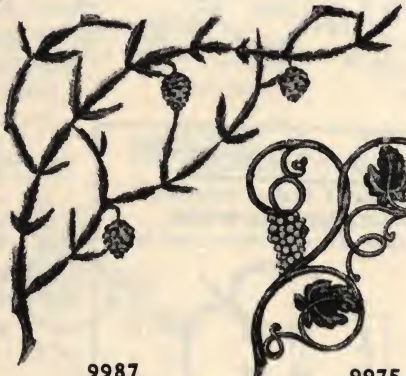


9938
14" x 22"



9951
14" x 16'

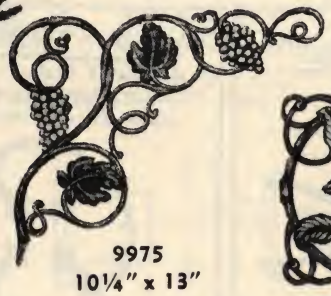
9983
15" x 17"



9987
14" x 17"



9939
9" x 9"



9975
10¼" x 13"



9952 8" x 8"



9984 8" x 8"



9924
34" x 7¼"
Tulip Design



9937 32" x 9"
Scroll & Leaf Design
Design Patent #D-174,107



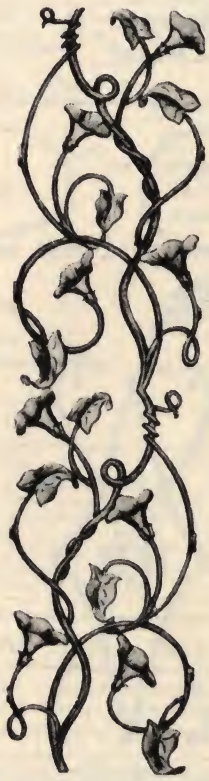
9986 32" x 8"
Spruce Design
Design Patent #185,123



9974 32¼" x 8½"
Light Grape Design



9950 32" x 8"
Dogwood Design
Design Patent #185,124



9982 32" x 8"
Morning Glory Design
Design Patent #185,122



9954
23¼" x 7¾"
Rosette Design

J.G. Braun Company

Skokie, Ill. EST. 1887 New York, N. Y.

SLIP ON BALUSTER ORNAMENTS

MALLEABLE IRON — DOUBLE FACED, REVERSIBLE

Easy to apply, durable and inexpensive.

for ½" square bars unless otherwise specified

Measurements Approximate

SCALE — 1 = 1'-0"



9929
10¼" x 8½"



9966
10½" x 8½"



9964
10½" x 8½"



9946

For ½" Sq. Bars
18" x 8¼"

For ⅝" Sq. Bars
18" x 8⅜"

SPECIFY ½" OR ⅝" WHEN ORDERING



9928
16" x 8⅜"



9967
16¾" x 8½"



9962
16¾" x 8½"



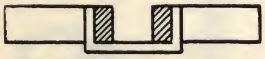
9985
16¾" x 8½"



9945
16¾" x 8½"



9965
16¾" x 8½"



SECTION showing slip-on band of Ornaments Nos. 9928, 9929, 9945, 9946, 9962, 9964, 9965, 9966 9967 and 9985

All castings are made from precision match-plate patterns and can be used in the most discriminating job.

All castings shown can also be furnished in Architectural Bronze or Aluminum on request

RAILING ORNAMENT

MALLEABLE IRON
DOUBLE FACED, REVERSIBLE



9944
Height 6" Width 14"

QUATREFOILS

MALLEABLE IRON • ALUMINUM
ARCHITECTURAL BRONZE
Specify Material When Ordering



No. 8316 4⅜" Diam.
No. 8317 4⅞" Diam.
No. 8318 5⅜" Diam.





9942 4⅞" x 3"
9943 8" x 3"

for ½" and ⅝" square bars

SPECIFY ½" OR ⅝" WHEN ORDERING



SECTION showing slip-on band of Ornaments Nos. 9942 and 9943

RAILING PANELS

Measurements Approximate

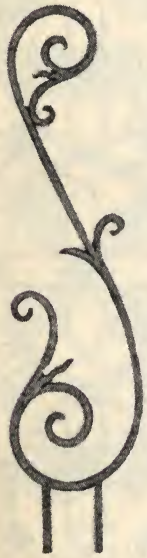
SCALE — 1" = 1'-0"

MALLEABLE IRON — DOUBLE FACED, REVERSIBLE

NEW IMPROVED CASTINGS

Nos. 9912, 9913, 9932 and 9933 have been redesigned — the bars now are approximately ½" square

Furnished in Aluminum or Arch. Bronze on Request



9933
33" x 8½"



9912
24½" x 10½"



9958
28" x 11"



9963
28" x 11"



9913
24½" x 10½"



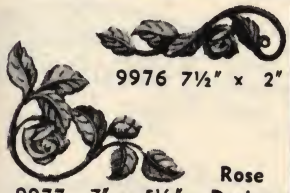
9932
37" x 9½"

J. G. Braun Company

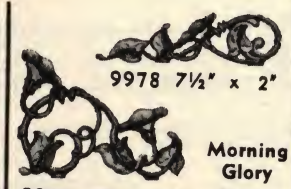
BRAUN HANDY SCROLLS

ALUMINUM and MALLEABLE IRON
Specify Material When Ordering
DOUBLE FACED, REVERSIBLE

These scrolls may be used for interior or exterior decorations such as: RAILINGS, GRILLS, FURNITURE, SIGNS, FIXTURES, MIRRORS, FOOTSCRAPERS, CORNERS, BORDERS, CRESTINGS, etc.
Measurements Approximate



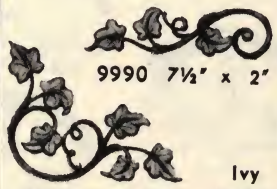
9976 7½" x 2"
9977 7" x 5½" Rose Design



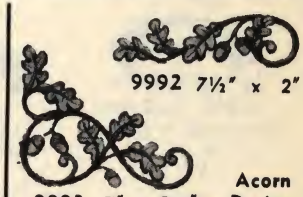
9978 7½" x 2"
9979 7" x 5½" Morning Glory Design



9988 7½" x 2"
9989 7" x 5½" Grape Design



9990 7½" x 2"
9991 7" x 5½" Ivy Design



9992 7½" x 2"
9993 7" x 5½" Acorn Design

BRAUN HANDY SCROLLS – SINGLE FACED

COPYRIGHTED

SCALE — 1½" = 1'-0" *Measurements Approximate*

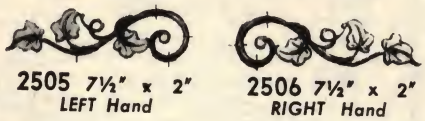
STAMPED STEEL OR STAMPED ALUMINUM No. 16 GAUGE EITHER METAL
Specify Material When Ordering

These scrolls may be used for interior or exterior decorations such as:
GRILLS, FURNITURE, SIGNS, MIRRORS, BORDERS, DOORS, CRESTINGS, FIXTURES, CORNERS FOR SCREENS, BOOKCASES, etc., etc.

Ivy Design



2507 7" x 5½" *LEFT Hand*
2508 7" x 5½" *RIGHT Hand*

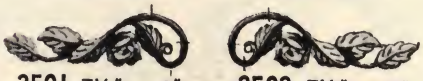


2505 7½" x 2" *LEFT Hand*
2506 7½" x 2" *RIGHT Hand*

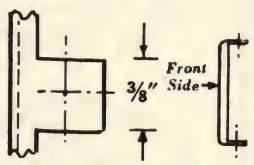
Rose Design



2503 7" x 5½" *LEFT hand*
2504 7" x 5½" *RIGHT hand*



2501 7½" x 2" *LEFT Hand*
2502 7½" x 2" *RIGHT Hand*



Note:
⅜" x ⅜" Tabs for Fastening with Screws or Spot Welding

PICKETS and Hinge Plate



No. 4
No. 12
No. 6
No. 2
No. 3
No. 5 **Hinge Plate**
Mall Iron and Aluminum
7¾" Long
Specify Material When Ordering

Malleable Iron
Pickets

No.	Length	WILL FIT
2	4¾"	½ to ⅝"○
3	5½"	½ to ⅝"□
4	6"	½ to ⅝"□
6	6¼"	¾ to 1⅛"□
12	4¼"	½ to ⅝"○

ROSETTES

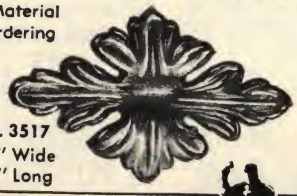
STOCKED IN : **Cast Iron • Aluminum • Architectural Bronze**
Specify Material When Ordering



No. 2538 2" Diam.
No. 2537 2½" Diam.
No. 2536 3" Diam.
No. 2535 3½" Diam.



No. 8805 3" Diam.
Aluminum or Bronze only

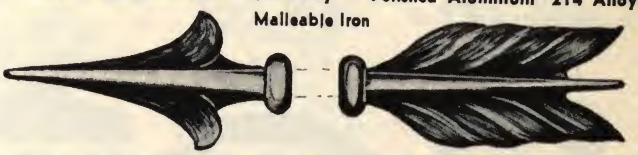


No. 3517
2¾" Wide
4½" Long

ARROWS AND FEATHERS

Specify Material When Ordering

Polished Arch. Bronze 85 – 3/5 Alloy • Polished Aluminum 214 Alloy
Malleable Iron



FOR ROUND RODS to ½" DIAMETER	No. 8800 ARROW Length 4½" Width 2"	No. 8801 FEATHER Length 4½" Width 2"
FOR ROUND RODS to ¾" DIAMETER	No. 8802 ARROW Length 6" Width 3"	No. 8803 FEATHER Length 6" Width 3"

1800 SERIES
MODERN DESIGN CASTINGS

STOCKED IN
Iron • Aluminum • Architectural Bronze
Specify Material When Ordering

Ornaments are arranged to form a continuous design and welded to frame bars. They can be over lapped to give a three-dimensional effect

Suggested Welding Rods for Welding Cast Iron Ornaments To Tubing — NI No. 55.

NOTE: Suggested Framework for Treillage — 1" x 1" x .073" (15 Gauge) Hot Rolled Steel Tubing

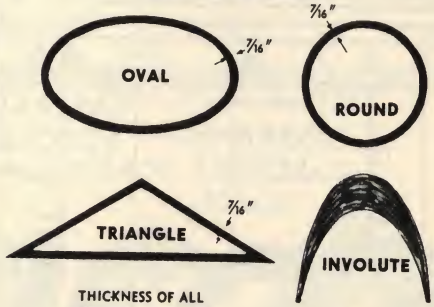
WRITE FOR: Four Page Circular "1800 TREILLAGE DESIGNS," OR: Two Page Circular "1800 RAILING PANEL DESIGNS," OR: Both . . . for the Ultimate in Modern Simplicity of Design.

Measurements Approximate



SUGGESTED DESIGN

LARGE - MEDIUM - SMALL



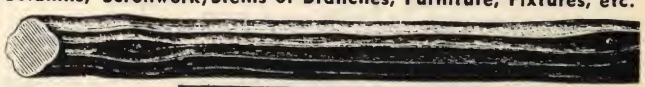
THICKNESS OF ALL ORNAMENTS 7/32"

TYPE	LARGE No. SIZE	MEDIUM No. SIZE	SMALL No. SIZE
TRIANGLE	1800 – 17" x 4 7/8"	1801–11 1/2" x 3 5/16"	1802-7 1/2" x 2 3/16"
OVAL	1803 – 12" x 7"	1804 – 9" x 5 1/4"	1805 - 6" x 3 1/2"
ROUND	1806 – 8 1/2" O. D.	1807 – 6" O. D.	1808 - 4" O. D.
INVOLUTE	1809 – 8 1/2" x 8 1/2"	1810 – 6" x 6"	1811 - 4" x 4"

ORNAMENTAL STEEL BARS

16 Ft. Length

In these sections the wood effect is splendidly reproduced. Their uses are manyfold. A few of them are suggested: For Balusters, Columns, Scrollwork, Stems of Branches, Furniture, Fixtures, etc.



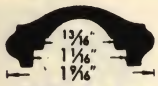
Number	844	845	846	847	1602
Size	5/16"	3/8"	1/2"	5/8"	1"
Weight Per Foot	.31 lbs.	.43 lbs.	.64 lbs.	.95 lbs.	2.64 lbs.

STEEL HANDRAILS

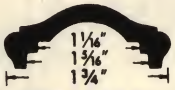
SCALE — HALF FULL SIZE
Weights and Measurements Approx

20 Foot Lengths

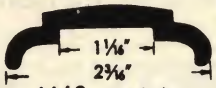
Steel Channels In Stock to Fit All Handrails



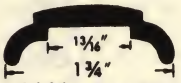
1247 1.38 lbs.
TERMINALS A, B, C, D, E, F, G, H, K, L, M, AA, BB,



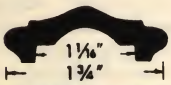
1250 1.65 lbs.
TERMINALS E,



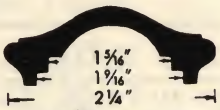
1162 1.40 lbs.
TERMINALS M,



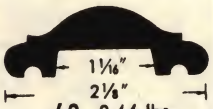
1161 1.24 lbs.
TERMINALS None



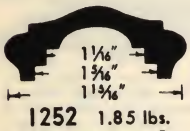
1248 1.52 lbs.
TERMINALS A, B, C, D, E, F, G, H, K, L, M, AA, BB,



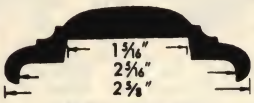
1244 2.30 lbs.
TERMINALS E, F, K, H,



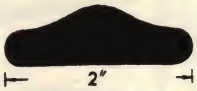
68 2.46 lbs.
TERMINALS A, H,



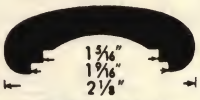
1252 1.85 lbs.
TERMINALS A, B, E, F, G, H, K, M, AA, BB,



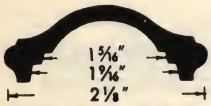
1143 2.12 lbs.
TERMINALS M,



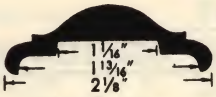
1251 3.15 lbs.
TERMINALS None



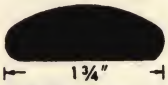
1256 2.58 lbs.
TERMINALS A, B, E, F, G, H, K, M,



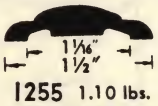
1245 1.80 lbs.
TERMINALS A, B, E, F, H,



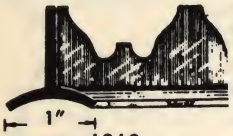
1144 1.71 lbs.
TERMINALS None



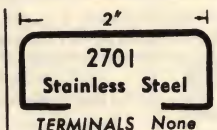
1249 3.04 lbs.
TERMINALS M,



1255 1.10 lbs.
TERMINALS M,



1260
Steel Loafers Rail
16 Ft. Lengths
May be applied to Flat Bar or Pipe. Can be bent.



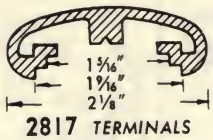
2701
Stainless Steel
TERMINALS None
Thickness No. 18 B.W.G.
20 Ft. Lengths
No. 3 Mill Finish
Easy Installation
Low Maintenance Cost
Enduring Finish

ARCH. BRONZE HANDRAILS

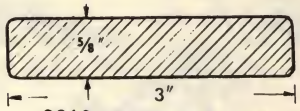
Bronze Channels In Stock to Fit All Handrails
SCALE — HALF FULL SIZE

Spec.—Copper 58%, Zinc, 38¾%, Lead 1¼% In Random 20-Foot Lengths

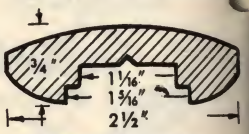
Measurements Approximate



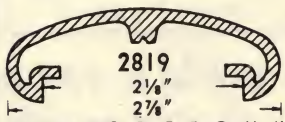
2817 *TERMINALS A, B, E, F, G, H, K,*



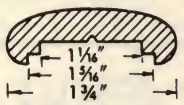
2860 *TERMINALS None*



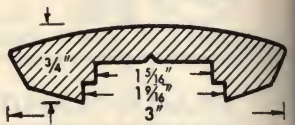
2857 *TERMINALS E, G, K,*



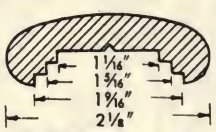
2819
TERMINALS C, D, E, F, G, H, K,



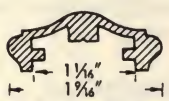
2854 *TERMINALS C, D, E, G, K, P,*



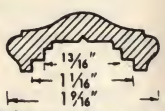
2859 *TERMINALS E, G, K,*



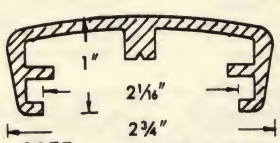
2852 *TERMINALS A, B, E, F, G, H, K,*



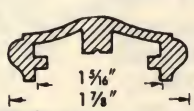
2812 *TERMINALS A, B, E, F, H, K, L, M, R, S, T, AA, BB,*



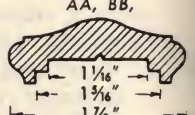
2847 *TERMINALS A, B, E, F, H, K, L, M, R, S, T, AA, BB,*



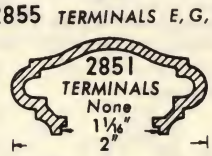
2855 *TERMINALS E, G, K,*



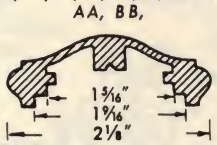
2813 *TERMINALS A, B, E, F, H, K, M, R, S, T, AA, BB,*



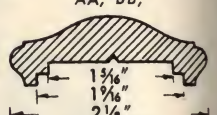
2848 *TERMINALS A, B, E, F, H, K, M, R, S, T, AA, BB,*



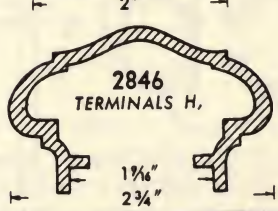
2851
TERMINALS None



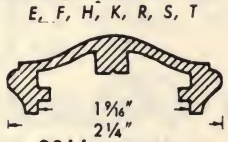
2845 *TERMINALS A, B, E, F, H, K, R, S, T*



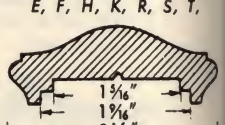
2850 *TERMINALS A, B, E, F, H, K, R, S, T,*



2846
TERMINALS H,



2816 *TERMINALS A, B, E, F, H, K, P,*



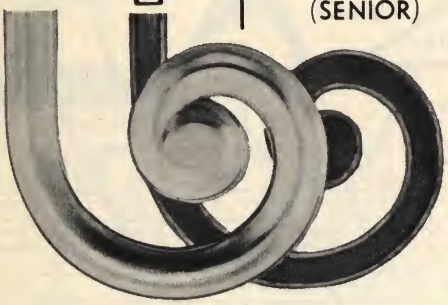
2853 *TERMINALS A, B, E, F, H, K, P,*

HANDRAIL TERMINALS

All Aluminum castings No. F214 Alloy• All Bronze Castings 85 - 3/5 Alloy
Aluminum and Bronze Terminals are furnished polished— Satin Finish

All Lateral and Channel Scrolls are furnished in either RIGHT or LEFT hand. Illustrations shown are RIGHT hand. Specify LEFT or RIGHT hand when ordering

A — LATERAL SCROLL (SENIOR)



Malleable Iron
For Steel Handrails
68-1245-1247
1248-1252-1256

For Aluminum Handrails
4900-4901-4904
4908-4909

For Bronze Handrails
2812-2813-2816-2817
2845-2847-2848-2850
2852-2853

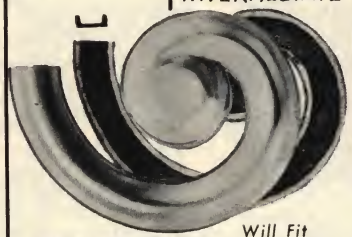
B — MALLEABLE CHANNEL SCROLL (SENIOR)

Will Fit Steel Handrails
1245-1247-1248
1252-1256

Will Fit Alum. Handrails
4900-4901-4904
4908-4909

Fit Bronze Handrails
2812-2813-2816
2817-2845-2847
2848-2850-2852
2853

AA — LATERAL SCROLL *INTERMEDIATE*



Malleable Iron
For Steel Handrails
1247-1248
1252

For Aluminum Handrails
4901-4908

For Bronze Handrails
2812-2813
2847-2848

BB — MALLEABLE CHANNEL SCROLL *INTERMEDIATE*

Will Fit Steel Handrails
1247-1248
1252

Will Fit Alum. Handrails
4901-4908

Will Fit Bronze Handrails
2812-2813
2847-2848

C — LATERAL SCROLL JUNIOR



Malleable Iron
For Steel Handrails
1247-1248

For Aluminum Handrails
4903-4905
4915

For Bronze Handrails
2819-2854

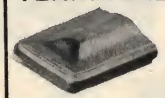
D — CHANNEL OR BAR SCROLL JUNIOR

MALLEABLE
BAR SCROLL
Will Fit Steel Handrails
1247-1248

Aluminum
CHANNEL SCROLL
Will Fit Alum. Handrails
4903-4905-4915

BRONZE
CHANNEL SCROLL
Will Fit Bronze Handrails
2819-2854

E — SQUARE TERMINAL

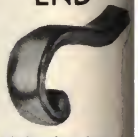


Malleable Iron *For Steel Handrails*
1244-1245
1247-1248
1250-1252
1256

For Alum. Handrails
4900-4901
4903-4904
4905-4908
4909-4915
4916-4917
4919-13010

For Bronze Handrails
2812-2813
2816-2817
2819-2845
2847-2848
2850-2852
2853-2854
2855-2857
2859

F — VERTICAL END



Malleable Iron
For Steel Handrails
1244-1245
1247-1248
1252-1256

For Aluminum Handrails
4900-4901
4904-4908
4909-4915
12729

For Bronze Handrails
2812-2813
2816-2817
2819-2845
2847-2848
2850-2852
2853

J. G. Braun Company

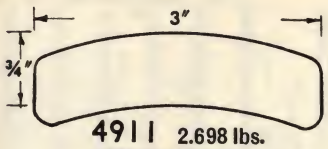
Skokie, Ill. EST. 1887 New York, N. Y.

ALUMINUM HANDRAILS

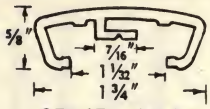
Weights and Measurements Approximate SCALE — HALF FULL SIZE

20 Foot Lengths 6063-T5 Alloy and Temper **Aluminum Channels in stock to fit all handrails**

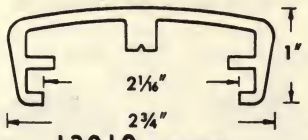
ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES



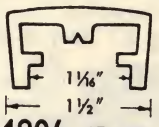
4911 2.698 lbs.
TERMINALS None



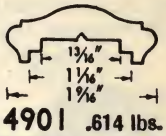
87067 .446 lbs.
TERMINALS None



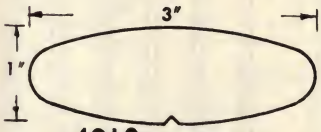
13010 .858 lbs.
TERMINALS E, G, K,



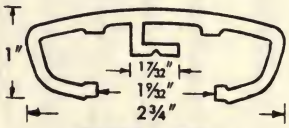
4906 .670 lbs.
TERMINALS None



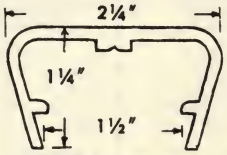
4901 .614 lbs.
TERMINALS A, B, E, F, H, K, L, M, R, S, T, AA, BB,



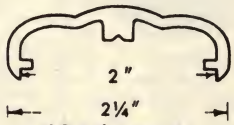
4910 2.822 lbs.
TERMINALS None



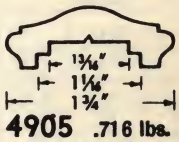
87068 .871 lbs.
TERMINALS None



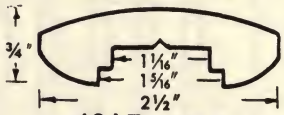
25300 .694 lbs.
TERMINALS None



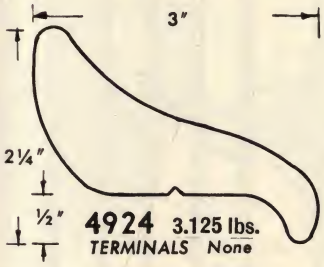
4914 .581 lbs.
TERMINALS None



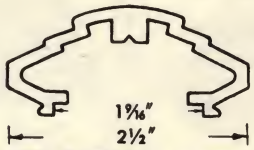
4905 .716 lbs.
TERMINALS C, D, E, G, M, P,



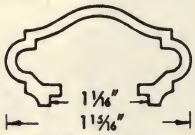
4917 1.25 lbs.
TERMINALS E, G, K,



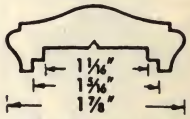
4924 3.125 lbs.
TERMINALS None



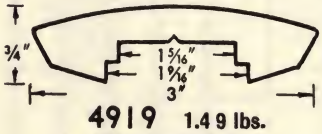
4912 (3986) .816 lbs.
TERMINALS None



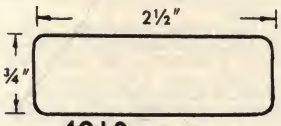
4913 .492 lbs.
TERMINALS None



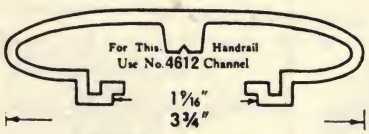
4908 .835 lbs.
TERMINALS A, B, E, F, H, K, M, R, S, T, AA, BB,



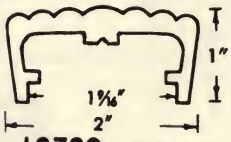
4919 1.49 lbs.
TERMINALS E, G, K,



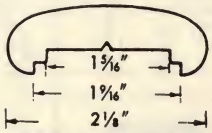
4918 2.214 lbs.
TERMINALS None



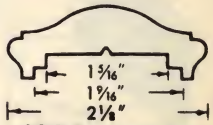
4916 1.408 lbs.
TERMINALS E,



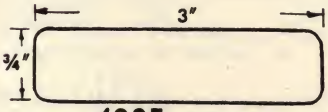
12729 .911 lbs.
TERMINALS F,



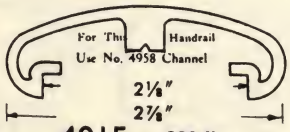
4904 1.244 lbs.
TERMINALS A, B, E, F, G, H, K,



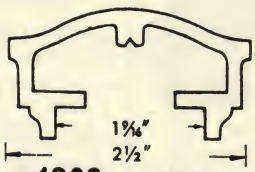
4900 1.010 lbs.
TERMINALS A, B, E, F, H, K, R, S, T,



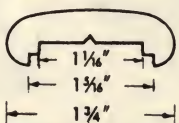
4925 2.675 lbs.
TERMINALS None



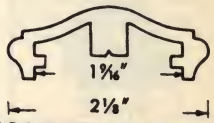
4915 .980 lbs.
TERMINALS C, D, E, F, G, H, K,



4902 1.192 lbs.
TERMINALS None



4903 .770 lbs.
TERMINALS C, D, E, G, K, P,



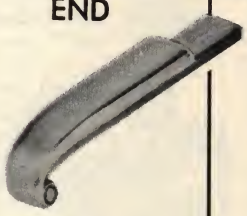
4909 (23681) .690 lbs.
TERMINALS A, B, E, F, H, K, R, S, T,

ATTENTION ARCHITECTS, DESIGNERS, RAILING SHOPS AND FABRICATORS

NOW READY — FULL SIZE DETAIL SHEETS OF ALL J. G. BRAUN HANDRAIL TERMINALS FOR TRACING AND LAYOUT WORK. YOUR FREE COPIES WILL BE SENT UPON REQUEST

DETAIL SHEET A - 2 - T FOR ALUMINUM HANDRAIL TERMINALS
DETAIL SHEET B - 2 - T FOR BRONZE HANDRAIL TERMINALS
DETAIL SHEET S - 2 - T FOR STEEL HANDRAIL TERMINALS

G — TERMINAL END



Malleable Iron
For Steel Handrails
1247-1248
1252-1256
For Alum. Handrails
4903-4904
4905-4915
4917-4919
13010
For Bronze Handrails
2817-2819
2852-2854
2855-2857
2859

H — LAMBS TONGUE BEVEL



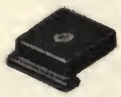
Malleable Iron
For Steel Handrails
68-1244-1245-1247
1248-1252-1256
For Alum-Handrails
4900-4901-4904
4908-4909-4915
For Bronze Handrails
2812-2813-2816-2817
2819-2845-2846-2847
2848-2850-2852-2853

K — CORNER BEND



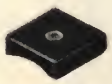
Malleable Iron
For Steel Handrails
1244-1247
1248-1252
1256
For Alum-Handrails
4900-4901-4903
4904-4908-4909
4915-4917-4919
13010
For Bronze Handrails
2812-2813-2816
2817-2819-2845
2847-2848-2850
2852-2853-2854
2855-2857-2859

L — END FINIAL BASE



Malleable Iron
For Steel Handrails
1247-1248
For Aluminum Handrails
4901
For Bronze Handrails
2812-2847

M — CENTER FINIAL BASE



Malleable Iron
For Steel Handrails
1143-1162
1247-1248
1249-1252
1255-1256
For Aluminum Handrails
4901-4905
4908
For Bronze Handrails
2812-2813
2847-2848

P — LAMBS TONGUE STRAIGHT



For Aluminum Handrails
4903-4905
For Bronze Handrails
2816-2853
2854

R S T — CAPS



For Alum-Handrails
4900-4901-4908
4909
For Bronze Handrails
2812-2813-2845
2847-2848-2850
For Steel Handrails
None Available

All J. G. Braun Co. terminals are inspected for fit and finish.

Nos. 1247 and 1248 End Finial Bases are available with 3/16" hole or without hole. Specify when ordering

J. G. Braun Company

Skokie, Ill. EST. 1887 New York, N. Y.

BALUSTER COLLARS — *Measurements Approximate*

STOCKED IN
CAST IRON • MALLEABLE IRON • PRESSED STEEL • SATIN POLISHED ALUMINUM
SATIN POLISHED ARCHITECTURAL BRONZE — Specify Material When Ordering
Arch. Bronze Collars 85 — 3/5 Alloy • Aluminum Collars F 214 Alloy



Type J
Cast Iron

HOLE	WIDTH	HEIGHT
½" Rd.	1¼"	1 1/16"
5/8" "	1⅜"	1 9/16"
¾" "	1⅝"	1 13/16"



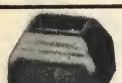
Type D
Cast Iron

HOLE	WIDTH	HEIGHT
½" Rd.	1¼"	¾"
5/8" "	1½"	⅞"
¾" "	1⅝"	1"



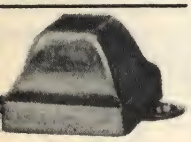
Type T
PRESSED STEEL

Hole	Width	Height
5/8" Sq.	1"	1¼"
¾" "	1 1/16"	1¼"



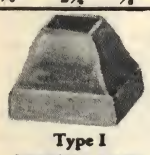
Type R
PRESSED STEEL

HOLE	WIDTH	HEIGHT
½" Sq.	1"	9/16"
5/8" "	1"	9/16"



Type U
PRESSED STEEL
FOR WOOD TREADS

HOLE	WIDTH	HEIGHT
½" Sq.	2¼"	⅛"
⅝" "	2¼"	⅛"



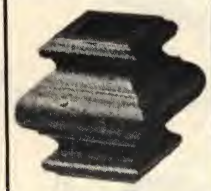
Type I
PRESSED STEEL

TYPE	HOLE	WIDTH	HEIGHT
Ia	½" Sq.	1 3/16"	1"
Ib	5/8" "	1 3/16"	1"
Ic	½" "	1 3/8"	1 1/16"
Id	5/8" "	1 3/8"	1 1/16"



Type K
PRESSED STEEL

TYPE	HOLE	WIDTH	HEIGHT
Ka	½" Sq.	1⅜"	1⅝"
Kb	5/8" "	1⅜"	1⅝"



Type H
Cast Iron

HOLE	WIDTH	HEIGHT
½" Sq.	1½"	1½"
5/8" "	1⅝"	1¾"
¾" "	1¾"	1¾"



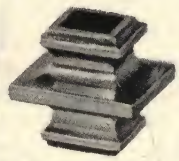
Type F
Cast Iron

HOLE	WIDTH	HEIGHT
½" Sq.	1¼"	1⅜"
5/8" "	1⅜"	1½"
¾" "	1⅜"	1½"
1" "	1¾"	1½"



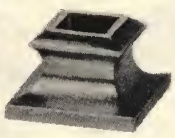
Type G
Cast Iron
Collar G cast with thin edges for change of pitch by grinding

HOLE	WIDTH	HEIGHT
½" Sq.	1¼"	1¾"
5/8" "	1⅜"	2"
¾" "	1⅝"	2¼"



Type N
Cast Iron
Aluminum–Bronze

HOLE	WIDTH	HEIGHT
½" Sq.	1 3/16"	1⅜"
5/8" "	1⅜"	1⅝"
¾" "	1 9/16"	1 13/16"



Type E
Cast Iron
Aluminum–Bronze

HOLE	WIDTH	HEIGHT
7/16" Sq.	1⅜"	¼"
½" "	1⅜"	¾"
5/8" "	1½"	⅞"
¾" "	1⅝"	1"
⅞" "	2"	1⅛"
1" "	2"	1⅛"



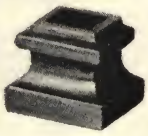
Type I
Malleable Iron

TYPE	HOLE	WIDTH	HEIGHT
If	¾" Sq.	1¾"	1⅜"
Ig	1" "	2⅜"	1¼"
Ih	1¼" "	3"	1¾"



Type W
Aluminum–Bronze

HOLE	WIDTH	HEIGHT
¼" Sq.	1⅛"	1¼"
5/8" "	1 5/16"	1⅜"
¾" "	1½"	1⅝"



Type V
Aluminum–Bronze

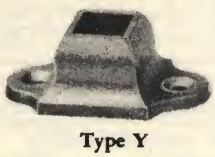
HOLE	WIDTH	HEIGHT
½" Sq.	1⅛	⅞"
5/8" "	1 5/16"	1"
¾" "	1½"	1⅛"
1" "	2"	1¼"



Type P
BALUSTER FLANGE
* Cast Iron
† Aluminum–Bronze

HOLE	WIDTH	HEIGHT
7/16" Rd.	1¾"	¾"
½" Rd.	1¾"	¾"

* With Set Screw
† *without holes.*



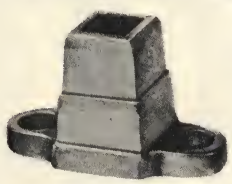
Type Y
Mall Iron–Aluminum–Bronze

HOLE	HEIGHT	BASE
7/16" Sq.	¾"	1⅛" x 2½"
½" "	¾"	1⅛" x 2½"
5/8" "	¾"	1¾" x 2¼"
¾" "	1"	1¾" x 2½"
⅞" "	1⅛"	1½" x 2¼"
1" "	1⅛"	1¾" x 3"



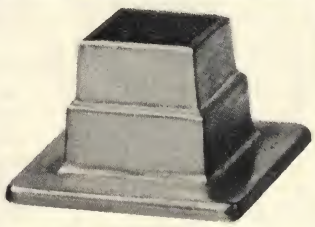
Type Q
Cast Iron

HOLE	HEIGHT	BASE
½"	¾"	1⅜"x3⅞"
1"	1⅛"	2⅞"x4½"



Type Z
Cast Iron – Aluminum – Bronze

HOLE	HEIGHT	BASE
7/16" Sq.	1⅜"	1" x 2⅜"
½" Sq.	1⅜"	1" x 2⅜"
5/8" Sq.	1¾"	1 1/16" x 2¾"
¾" Sq.	2"	1½" x 3¼"
⅞" Sq.	2⅛"	1⅝" x 3½"
1" Sq.	2¼"	1¾" x 3⅝"



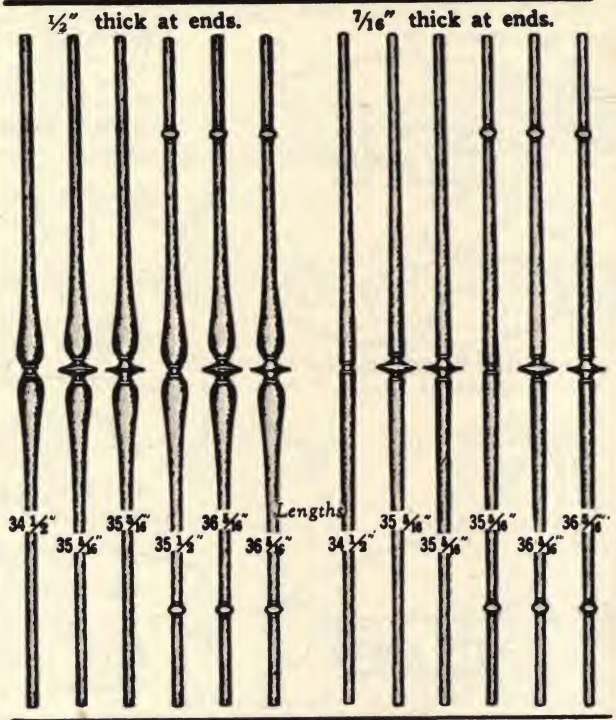
POST FLANGES No. 100
Malleable Iron – Aluminum – Bronze

Hole	Width	Height
#100—1"	2⅜"	1½"
#100—1¼"	3⅜"	2"
#100—1½"	3⅜"	2"
#100—2"	4⅜"	2⅜"
†#100—3"	5⅜"	2½"

† Cast Iron – Aluminum - Bronze

NOTE:
When Ordering, Specify Numbers and Sizes of Materials Wanted.

FORGED BALUSTER SPINDLES

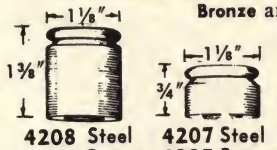


ALL STEEL
4230 4231 4232 4236 4237 4238 4250 4251 4252 4256 4257 4258

STEEL SPINDLES WITH BRONZE CENTERS AND BUTTONS
4270 4271 4272 4276 4277 4278 4290 4291 4292 4296 4297 4298

STEEL SPINDLES WITH ALUMINUM CENTERS AND BUTTONS
4262 4263 4264 4265 4266 4267 4242 4243 4244 4245 4246 4247

All Spindles are made sectional allowing for variations.
Bronze and **Aluminum** parts highly polished.



4208 Steel **4207** Steel
4226 Bronze **4225** Bronze
4219 Alum. **4218** Alum.

End Studs are 6" long to allow for cutting to desired length.

Collars Nos. **4208** **4219** and **4226** may be cut to pitch when used for closed stringers.

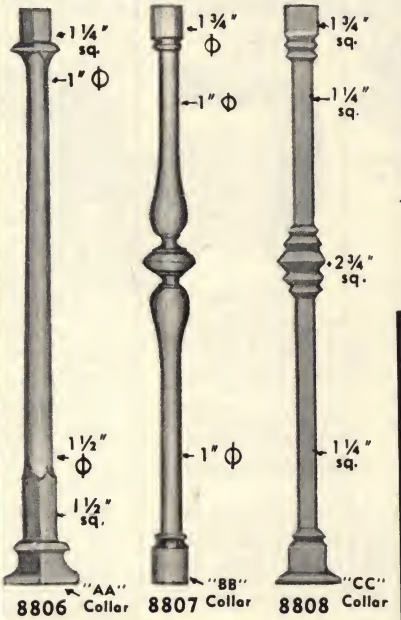
RAILING STARTING POSTS

Smooth finish or handforged effect

ALUMINUM, CAST IRON and BRONZE
Specify Material When Ordering

Specify Finish Desired When Ordering

Overall Length 36" with loose base collars



8806 **8807** **8808**

TYPE "AA" Post Collars

HOLE	WIDTH	HEIGHT
1½"sq.	3½"sq.	2¾"

TYPE "BB" Post Collars

HOLE	WIDTH	HEIGHT
1" Φ	2¼" Φ	3"

TYPE "CC" Post Collars

HOLE	WIDTH	HEIGHT
1¼"sq.	3½"sq.	3¼"

STEEL WALL RAILING
ANCHOR BRACKET



No. 5500 Plain Finish
No. 5501 Embossed

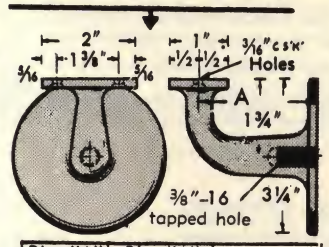
Measurements Approximate

J. G. Braun Company

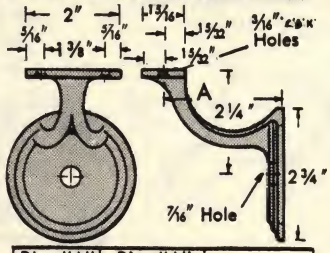
BRACKETS

POLISHED ALUMINUM F214 Alloy • POLISHED ARCHITECTURAL BRONZE 85 3/5 Alloy • MALLEABLE IRON *Measurements Approximate* 6

Flat Top for Bar or Channel — ALUM. & BRONZE BRACKETS SATIN POLISH

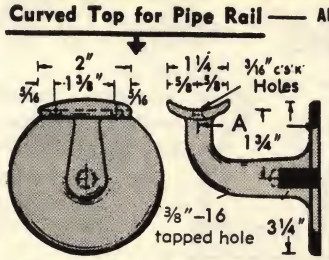


Dim. "A" 2½"	Dim. "A" 3"	Material
No. 4587	No. 4499-3"	Aluminum
No. 4588	No. 4497-3"	Bronze
No. 4589	No. 4545-3"	Mall. Iron

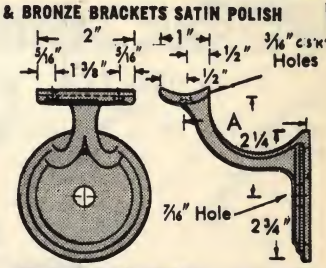


Dim. "A" 2½"	Dim. "A" 3"	Material
No. 4580	No. 4495-3"	Aluminum
No. 4584	No. 4493-3"	Bronze
No. 4591	No. 4548-3"	Mall. Iron

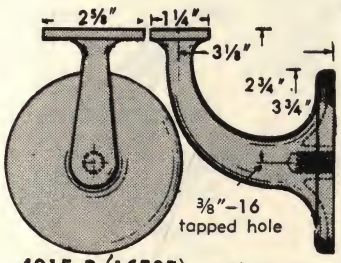
Curved Top for Pipe Rail — ALUM. & BRONZE BRACKETS SATIN POLISH



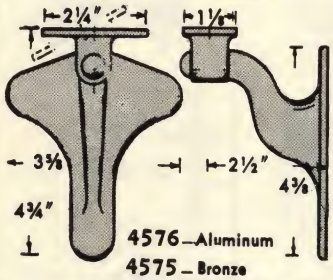
Dim. "A" 2½"	Dim. "A" 3"	Material
No. 4593	No. 4498-3"	Aluminum
No. 4594	No. 4496-3"	Bronze
No. 4595	No. 4546-3"	Mall. Iron



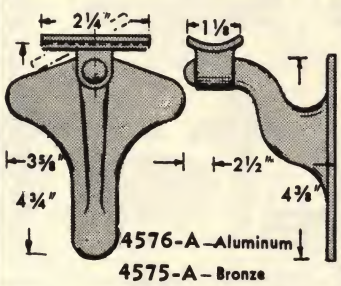
Dim. "A" 2½"	Dim. "A" 3"	Material
No. 4579	No. 4494-3"	Aluminum
No. 4583	No. 4492-3"	Bronze
No. 4596	No. 4549-3"	Mall. Iron



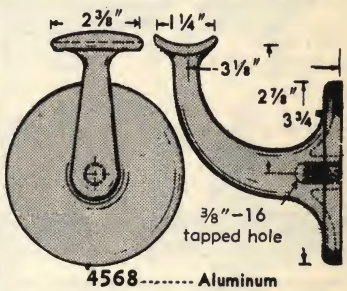
4915-B (16505)..... Aluminum
4592 ..... Bronze



4576 – Aluminum
4575 – Bronze
4577 – Mall. Iron

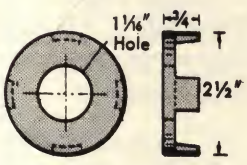


4576-A – Aluminum
4575-A – Bronze
4578 – Mall. Iron

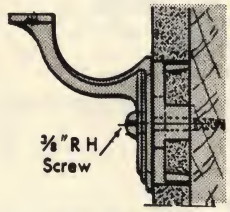


4568..... Aluminum
4569..... Bronze

WALL BRACKET FILLER

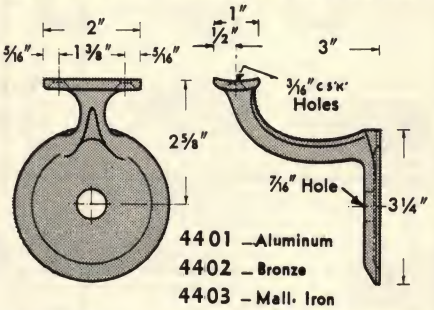


4405
CAST IRON
WALL BRACKET FILLER

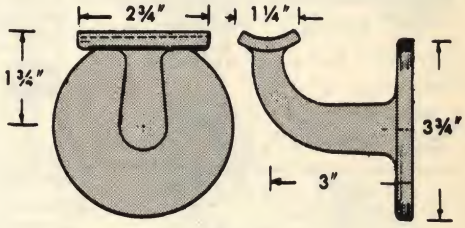


SKETCH SHOWING FASTENING OF WALL BRACKET USING FILLER No. 4405

Top for Bar or Channel or for Pipe Rail



4401 – Aluminum
4402 – Bronze
4403 – Mall. Iron



4582 ALUMINUM

STEEL WELDING FITTINGS

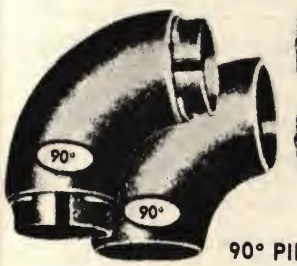
for Pipe Rails — I. P. S. Sizes 1" 1¼" 1½" 2"

Connectors are snap-in type with shoulder to hold pipe and ell in alignment, preparing connection for welding Connectors slip easily and quickly into ell with spring fit.

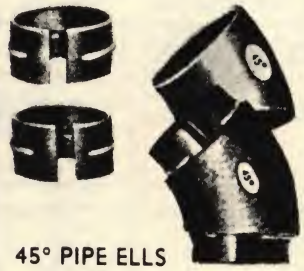
PIPE CONNECTORS hold pipe and fitting connections in perfect position, ready for welding.

ALSO AVAILABLE IN ALUMINUM–BRONZE–STAINLESS

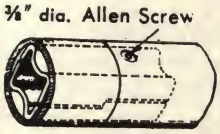
FOR ALL PIPE RAILING JOBS



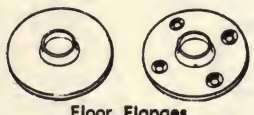
90° PIPE ELLS and CONNECTORS



45° PIPE ELLS and CONNECTORS



PIPE RAILING SPLICE LOCK



Floor Flanges Plain — With Holes



Wall Flanges With Set Screw

FINIALS

With 3/8" - 16 Tapped Hole In Base *unless otherwise specified*

NEW DESIGN MODERN FLAME



POLISHED BRONZE
No. 4554 Square Base
No. 4556 Round Base
Height 3" Base 1"

No. 4555 Square Base
No. 4559 Round Base
Height 4" Base 1¼"

POLISHED ALUMINUM
No. 4407 Square Base
No. 4406 Round Base
Height 3" Base 1"

No. 4409 Square Base
No. 4408 Round Base
Height 4" Base 1¼"

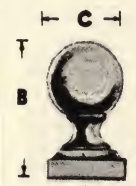
URN TYPE



SQUARE BASE	A	B	C	ROUND BASE
POLISHED BRONZE				
No. 4510	1"	3"	1¼"	No. 4516
No. 4511	1¼"	4"	1½"	No. 4517
No. 4512	1½"	5"	1¾"	No. 4518
No. 4519	1¾"	6"	2¼"	
POLISHED ALUMINUM				
No. 4570	1"	3"	1¼"	No. 4597
No. 4571	1¼"	4"	1½"	No. 4598
No. 4572	1½"	5"	1¾"	No. 4599
No. 4573	1¾"	6"	2¼"	
STEEL				
No. 4513	1"	3"	1¼"	No. 4533
No. 4514	1¼"	4"	1½"	No. 4534
No. 4515	1½"	5"	1¾"	No. 4535
* No. 4539	1¾"	6"	2¼"	

* Malleable Iron, not Tapped

BALL TYPE



SQUARE BASE	A	B	C	ROUND BASE
POLISHED BRONZE				
No. 4500	1"	1¼"	1"	No. 4506
No. 4501	1¼"	2¼"	1¼"	No. 4507
No. 4502	1½"	2½"	1½"	No. 4508
No. 4551	1¾"	3¼"	2"	
POLISHED ALUMINUM				
No. 4560	1"	1¼"	1"	No. 4565
No. 4561	1¼"	2¼"	1¼"	No. 4566
No. 4562	1½"	2½"	1½"	No. 4567
No. 4564	1¾"	3¼"	2"	
STEEL				
No. 4503	1"	1¼"	1"	No. 4530
No. 4504	1¼"	2¼"	1¼"	No. 4531
No. 4505	1½"	2½"	1½"	No. 4532
* No. 4540	1¾"	2¾"	1¾"	
* No. 4541	1¾"	3¼"	2"	

* Malleable Iron, not Tapped

Measurements Approximate

J. G. Braun Company

Skokie, Ill. EST. 1887 New York, N. Y.

PIPE RAIL FITTINGS

FLUSH TYPE

DESIGNED FOR 1¼" & 1½" I.P.S. STANDARD PIPE SIZES.

BRAUN "11000 SERIES" FITTINGS ARE IDEAL FOR QUICK AND EASY INSTALLATION — A STURDY AND ATTRACTIVE RAIL AT A REASONABLE COST.

STOCKED IN :

- **Aluminum — F214 Alloy — Satin Finish**
- **Architectural Bronze — 85 3/5 Alloy — Satin Finish**
- **Cast Iron**

Specify Material When Ordering

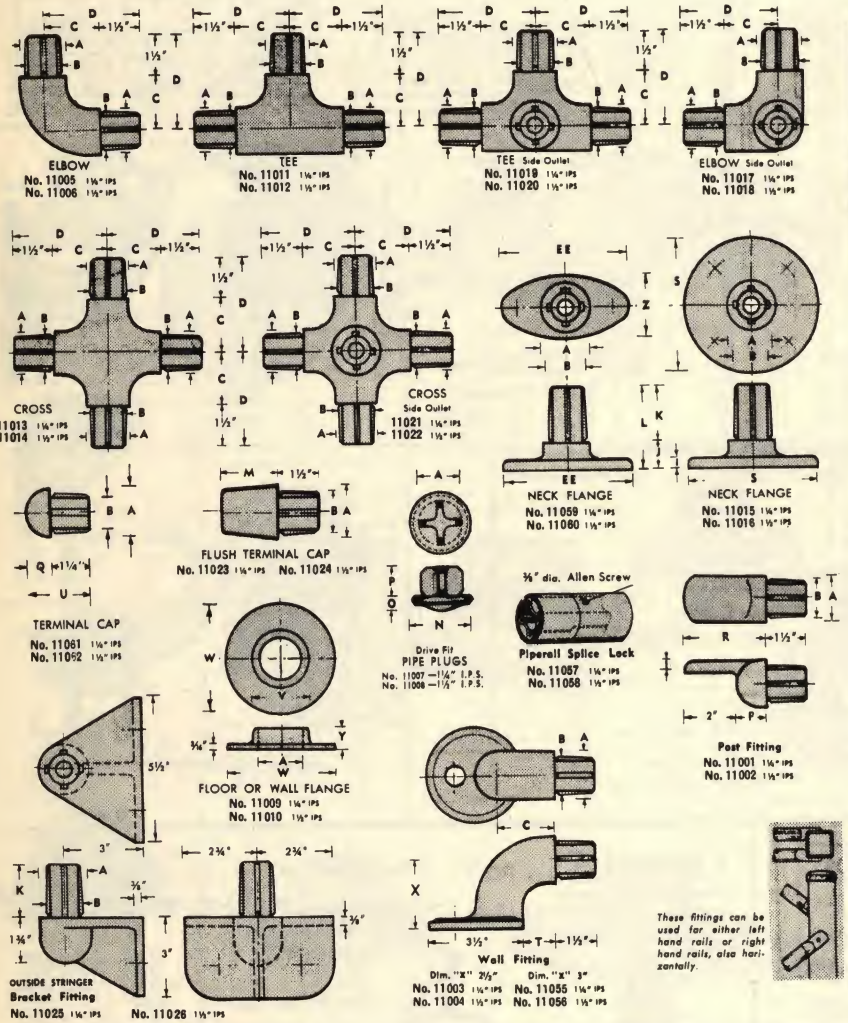
FOR SELECTION OF BRACKETS SEE PAGE 9

Pipe and Flush Type Fittings are fastened together by means of pins, welding or Self Tapping Screws

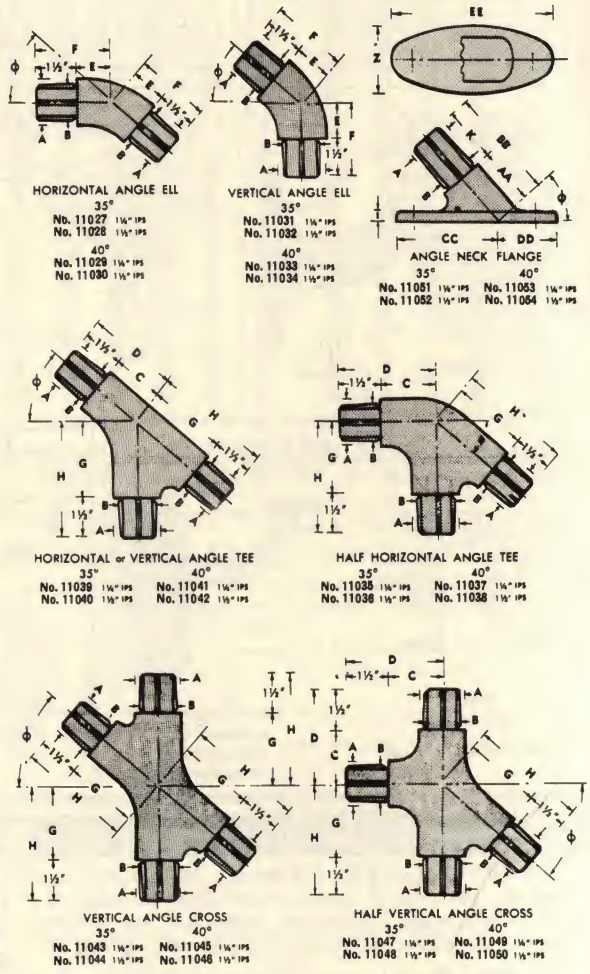
All flanges furnished without anchorage holes, except No's. 11003, 11004, 11055, 11056

Measurements Approximate

90° FITTINGS



35° AND 40° FITTINGS



PIPE SIZE I.P.S.	FITTING ANGLE (ϕ)	DIMENSIONS—INCHES																											
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	Y	Z	AA	BB	CC	DD	EE
1¼	90°	1 21/32	1 3/8	2	3½					⅜	1	2 1/16	3 1/16	1¾	1⅞	½	1	5 3/64	3	4⅝	1¼	2 5/64	2⅛	3⅞	13/16	2½					6
	40°	1 21/32	1 3/8	2	3½	1¼	2¾	2¾	4¼	⅜		2 1/16														2½	2⅛	4 3/16	3¾	2¼	6
	35°	1 21/32	1 3/8	2	3½	1¼	2¾	2¾	4¼	⅜		2 1/16														2½	1⅞	3 15/16	3¾	2¼	6
1½	90°	1 29/32	1 15/32	2¼	3¾					7/16	1 1/16	2 7/16	3½	2	2⅛	9/16	1⅛	6 1/64	3⅛	5⅛	1½	2 13/64	2⅜	4 3/16	⅞	2¾					6½
	40°	1 29/32	1 15/32	2¼	3¾	1½	3	3	4½	7/16		2 7/16														2¾	2 5/16	4⅝	4	2½	6½
	35°	1 29/32	1 15/32	2¼	3¾	1½	3	3	4½	7/16		2 7/16														2¾	1 5/16	4⅜	4	2½	6½

ALUMINUM I.P.S. STANDARD PIPE

6063-T6 Alloy and Temper

Size I.P.S.	Outside Diameter	Inside Diameter	Wall Thickness	Weight Per Foot
1¼"	1.660"	1.380"	.140"	.785 lbs
1½"	1.900"	1.610"	.145"	.939 lbs

20 Ft. Length
Plain Ends
(Not Polished)

I.P.S. HANDRAIL PIPE

ALUMINUM

6063-T832 Alloy and Temper

Size I.P.S.	Outside Diameter	Inside Diameter	Wall Thickness	Weight Per Foot
1¼"	1.660"	1.380"	.140"	.785 lbs
1½"	1.900"	1.610"	.145"	.939 lbs

20 Ft. Length
Plain Ends
(Not Polished)

RICH LOW BRASS

(Matches color of Extruded Bronze)

Spec.— Copper 85% Zinc 15%

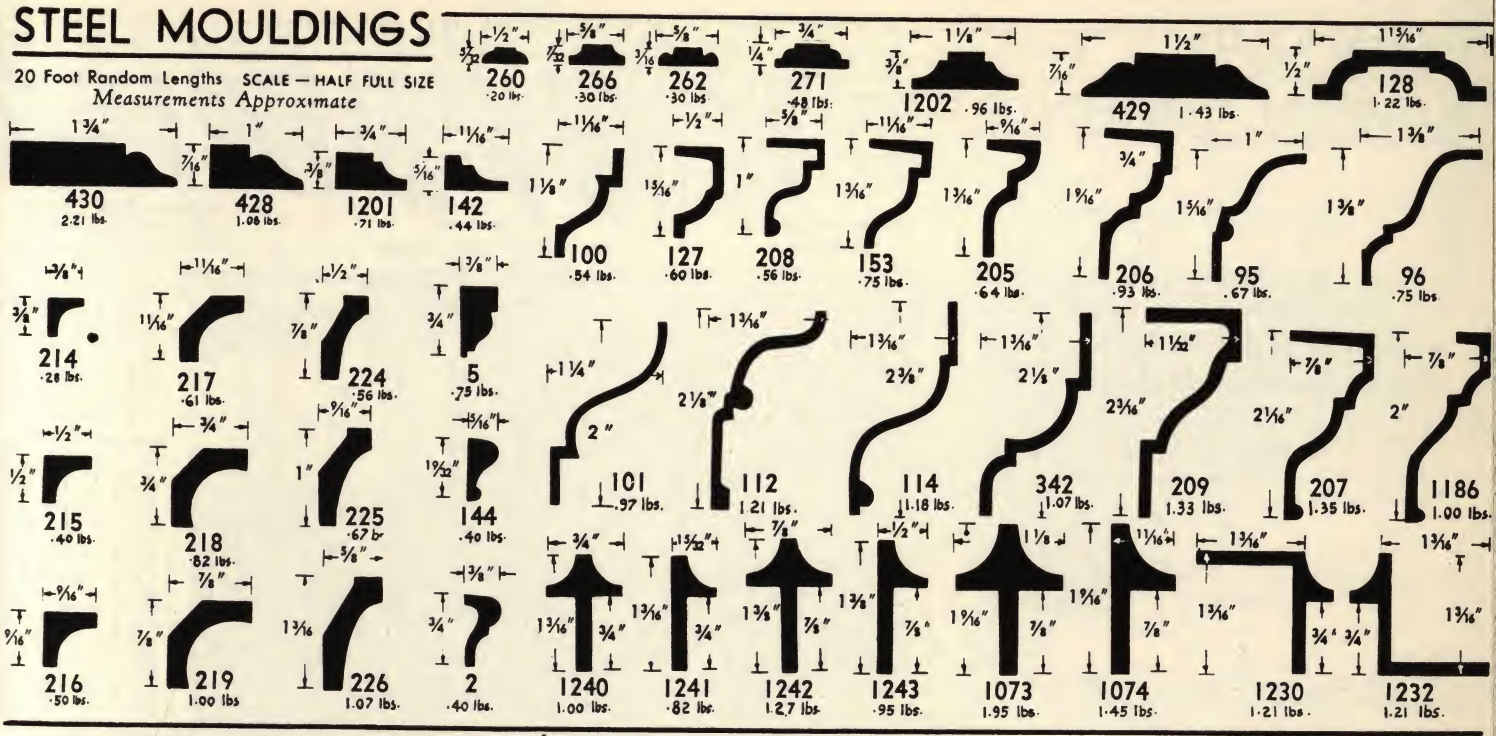
Size I.P.S.	Mill Finish O. D.	Inside Diameter	Wall Thickness	Weight Per Foot
1¼"	1.660	1.368	.146"	2.63 lbs
1½"	1.900	1.600	.150"	3.13 lbs

Weights and Measurements Approximate

J.G. Braun Company
Skokie, Ill. EST. 1887 New York, N. Y.

STEEL MOULDINGS

20 Foot Random Lengths SCALE — HALF FULL SIZE
Measurements Approximate

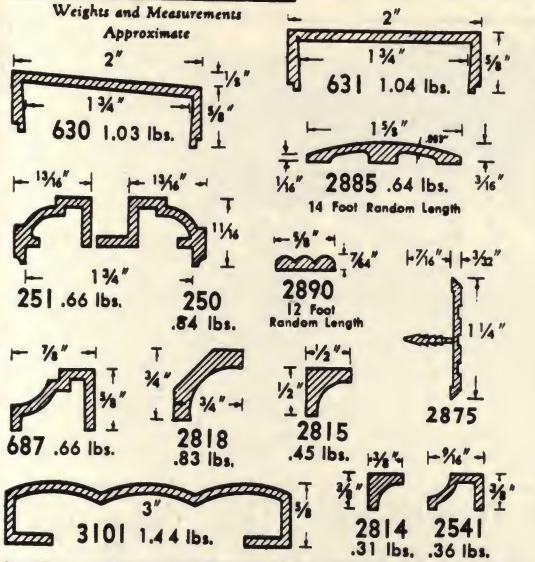


EXTRUDED ARCHITECTURAL BRONZE

MOULDINGS BARS-SHAPES

Spec.—Copper 58%
Zinc 38¾%, Lead 3¼%
16 Foot Random Lengths
unless otherwise specified
SCALE — HALF FULL SIZE

Weights and Measurements Approximate



RECTANGULAR BARS

Sharp Corners

A	B	Weight Per Foot
⅛"	x ¼"	.135 lbs.
⅛"	x ½"	.230 lbs.
⅛"	x ⅝"	.290 lbs.
⅛"	x ¾"	.350 lbs.
⅛"	x 1"	.460 lbs.
⅛"	x 1¼"	.580 lbs.
⅛"	x 1½"	.690 lbs.
⅛"	x 2"	.920 lbs.
⅛"	x 3"	1.380 lbs.
3/16"	x ½"	.345 lbs.
3/16"	x ¾"	.516 lbs.
3/16"	x 1"	.691 lbs.
3/16"	x 1¼"	.860 lbs.
3/16"	x 1½"	1.036 lbs.
3/16"	x 2"	1.382 lbs.
3/16"	x 2½"	1.727 lbs.
3/16"	x 3"	2.075 lbs.
¼"	x ½"	.461 lbs.
¼"	x ⅝"	.580 lbs.
¼"	x ¾"	.690 lbs.
¼"	x 1"	.920 lbs.
¼"	x 1¼"	1.150 lbs.
¼"	x 1½"	1.380 lbs.
¼"	x 2"	1.840 lbs.
¼"	x 2½"	2.300 lbs.
¼"	x 3"	2.760 lbs.
¼"	x 4"	3.650 lbs.
3/8"	x ½"	.691 lbs.
3/8"	x ¾"	1.03 lbs.
3/8"	x 1"	1.38 lbs.
3/8"	x 1¼"	1.73 lbs.
3/8"	x 1½"	2.07 lbs.
3/8"	x 2"	2.76 lbs.
3/8"	x 2½"	3.42 lbs.
3/8"	x 3"	4.11 lbs.
½"	x ¾"	1.38 lbs.
½"	x 1"	1.84 lbs.
½"	x 1¼"	2.30 lbs.
½"	x 1½"	2.76 lbs.
½"	x 2"	3.68 lbs.
½"	x 2½"	4.60 lbs.
½"	x 3"	5.52 lbs.
¾"	x 1"	2.76 lbs.
¾"	x 1½"	4.14 lbs.

ROUND RODS

Size	Weight Per Foot
3/8"	.407 lbs.
½"	.723 lbs.
5/8"	1.130 lbs.
¾"	1.628 lbs.
1"	2.893 lbs.
1¼"	4.521 lbs.

SQUARE BARS

Sharp Corners

Size	Weight Per Foot
3/16"	.380 lbs.
3/8"	.520 lbs.
½"	.920 lbs.
5/8"	1.440 lbs.
¾"	2.08 lbs.
1"	3.69 lbs.
1¼"	5.76 lbs.

STEEL ANGLES and CHANNELS

ANGLES

Equal, Square Root
HOT ROLLED

NO.	SIZE	WEIGHT
972	½" x ½" x ⅛"	.344
976	5/8" x 5/8" x ⅛"	.474
979	¾" x ¾" x ⅛"	.599
987	1" x 1" x ⅛"	.787
992	1¼" x 1¼" x ⅛"	.992
1157	1½" x 1½" x ⅛"	1.225

CHANNELS

Equal, Square Root
HOT ROLLED

NO.	SIZE	WEIGHT
1061	½" x ½" x 5/64"	0.382
1052	¾" x ¾" x 3/32"	0.720
1054	1" x 1" x ⅛"	1.200
1067	1¼" x 1¼" x ⅛"	1.477
1155	1½" x 1½" x ⅛"	1.70
1139	2" x 2" x 5/32"	2.888

20-Foot Lengths

Unequal, Square Root

CHANNELS

HOT ROLLED

No. 1089

2" x 1" x ⅛"

WEIGHT 1.45

Rounded Outside corners

CHANNELS

Cold Rolled

1" x 7/16" x .120"
1¼" x 9/16" x ⅛"
1½" x ½" x ⅛"

BRONZE CHANNELS UNEQUAL

Square Root Square Edge
20 Ft. Random Lengths

Number	A	B	C	Weight Per Foot
2888	⅜" x	¾" x	⅛"	.57 lbs.
2820	½" x	¾" x	⅛"	.68 lbs.
2821	½" x	1" x	⅛"	.81 lbs.
2840	½" x	1¼" x	⅛"	.91 lbs.
2841	½" x	1½" x	⅛"	1.02 lbs.
2822	5/8" x	1¼" x	⅛"	1.02 lbs.
2823	5/8" x	1½" x	⅛"	1.15 lbs.
2824	5/8" x	2" x	⅛"	1.38 lbs.

BRONZE CHANNELS EQUAL

Square Root Square Edge
16 Foot Random Lengths

Number	A	B	C	Weight Per Foot
2828	½" x	½" x	3/32"	.45 lbs.
2842	¾" x	¾" x	⅛"	.90 lbs.
2843	1" x	1" x	⅛"	1.25 lbs.
2844	1¼" x	1¼" x	⅛"	1.59 lbs.
2879	1½" x	1½" x	⅛"	1.94 lbs.

BRONZE ANGLES EQUAL

Square Root Square Edge
16 Foot Random Lengths

Number	A	B	C	Weight Per Foot
2830	½" x	½" x	⅛"	.40 lbs.
2831	5/8" x	5/8" x	⅛"	.52 lbs.
2832	¾" x	¾" x	⅛"	.63 lbs.
2833	1" x	1" x	⅛"	.87 lbs.
2834	1¼" x	1¼" x	⅛"	1.09 lbs.
2835	1½" x	1½" x	⅛"	1.32 lbs.
2836	2" x	2" x	⅛"	1.78 lbs.
2837	2½" x	2½" x	⅛"	2.25 lbs.

BRONZE TEES

Square Root Square Edge
16 Foot Random Lengths

Number	A	B	C	Weight Per Foot
2826	¾" x	¾" x	⅛"	.63 lbs.
2827	1" x	1" x	⅛"	.86 lbs.
2878	1½" x	1½" x	⅛"	1.32 lbs.

BRONZE ANGLES UNEQUAL

Square Root Square Edge
16 Foot Random Lengths

Number	A	B	C	Weight Per Foot
2829	½" x	1" x	⅛"	.65 lbs.
2877	¾" x	1" x	⅛"	.75 lbs.
2838	¾" x	1½" x	⅛"	.97 lbs.
2839	1" x	2" x	⅛"	1.33 lbs.

Rich Low Brass HANDRAIL PIPE

Spec.— Copper 85% Zinc 15%
(Matches color of Extruded Bronze)

I.P.S.	Mill Finish O.D.	WALL	Weight Per Foot
1¼"	1.66"	.146"	2.63 lbs.
1½"	1.90"	.150"	3.13 lbs.

20 Ft. Length. Plain Ends

BRASS TUBING

Spec.—Copper 85%, Zinc 15% (Matches color of Extruded Bronze)

RICH LOW BRASS
Sharp Corners
16 Foot Lengths.

SQUARE TUBING

Size A	B	C	Weight Per Foot
½" x	½" x	.065"	.417 lbs.
5/8" x	5/8" x	.065"	.543 lbs.
¾" x	¾" x	.065"	.670 lbs.
1" x	1" x	.065"	.919 lbs.
1¼" x	1¼" x	.083"	1.480 lbs.
1½" x	1½" x	.083"	1.780 lbs.
1¾" x	1¾" x	.083"	2.090 lbs.
2" x	2" x	.083"	2.410 lbs.
3" x	3" x	.081"	3.667 lbs.

RECTANGULAR TUBING

Size A	B	C	Weight Per Foot
½" x 1"	x	.065"	.670 lbs.
¾" x 1½"	x	.065"	1.036 lbs.
1" x 1½"	x	.081"	1.47 lbs.
1" x 2"	x	.083"	1.78 lbs.
1¼" x 2½"	x	.083"	2.25 lbs.
1½" x 3"	x	.083"	2.70 lbs.
1¾" x 3"	x	.083"	2.85 lbs.
1¾" x 3½"	x	.083"	3.16 lbs.
1¾" x 4"	x	.083"	3.46 lbs.
1¾" x 5"	x	.083"	4.07 lbs.
2" x 3"	x	.083"	3.05 lbs.

MUNTZ METAL SHEETS

COLD ROLLED — Matches color of Extruded Bronze

B. & S. Gauge or Inch Thickness	Size of Sheet	Total Weight Per Sheet — Lbs.
26 Gauge	24" x 48"	6 lbs.
24 Gauge	"	7 lbs.
22 Gauge	"	9 lbs.
20 Gauge	"	11 lbs.
14 Gauge	"	22 lbs.
3/32"	"	33 lbs.
⅛"	"	44 lbs.
3/16"	"	66 lbs.
¼"	"	88 lbs.
⅜"	"	131 lbs.
14 Gauge	30" x 60"	35 lbs.
3/16"	"	103 lbs.
20 Gauge	30" x 96"	28 lbs.
14 Gauge	"	56 lbs.
⅛"	"	110 lbs.
20 Gauge	36" x 96"	34 lbs.
16 Gauge	"	53 lbs.
14 Gauge	"	67 lbs.
12 Gauge	"	85 lbs.
⅛"	"	131 lbs.
16 Gauge	36" x120"	67 lbs.

J. G. Braun Company

Skokie, Ill. EST. 1887 New York, N. Y.

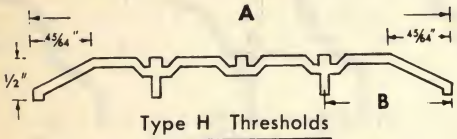
THRESHOLDS
Can be furnished in cut to size lengths, drilled and countersunk.

ALUMINUM THRESHOLDS

ALL ALUMINUM SECTIONS SHOWN ARE AVAILABLE IN ARCHITECTURAL ANODIZED FINISHES.

6063-T5 Alloy and Temper
16 Ft.—3 In. Length

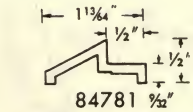
Weights and Measurements Approximate



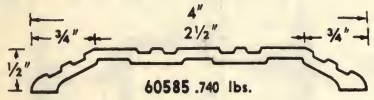
Type H Thresholds
suitable for floor mounted door checks

SECTION NUMBER	DIMENSIONS—INCHES A	B	EST WT PER FT, LBS
*84782	4	2.000	.630
84783	5	1.450	.804
84784	6	2.000	.988
84785	7	2.293	1.127

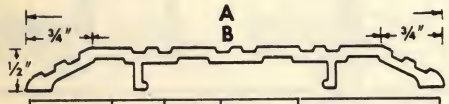
* Single Leg in Center



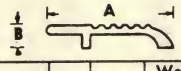
84781 9/32"
Miter strip
for Type H thresholds



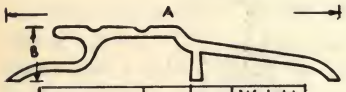
60585 .740 lbs.



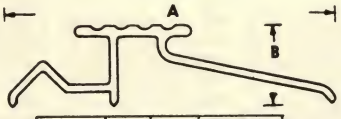
Number	A	B	Grooves	Weight per foot
60586	5"	3 1/2"	10	1.014 lbs.
60587	6"	4 1/2"	12	1.183 lbs.
60588	7"	5 1/2"	14	1.352 lbs.



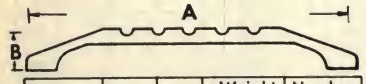
Number	A	B	Weight per foot
10346	1 1/4"	17/64"	.180 lb.
P3796	1 3/8"	1/4"	.184 lb.
38653	1 3/8"	17/64"	.194 lb.
10347	1 1/2"	17/64"	.232 lb.
38654	1 5/8"	17/64"	.224 lb.



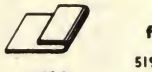
Number	A	B	Weight per foot
4805 or 10353	3 1/2"	9/16"	.595 lb.
P3704	3 1/2"	9/16"	.577 lb.
38649	4 1/4"	9/16"	.689 lb.
P3798	4 1/4"	5/8"	.701 lb.



Number	A	B	Weight per foot
5192	3 1/2"	7/8"	.649 lb.
20999	3 1/2"	7/8"	.661 lb.
38658	4 1/4"	7/8"	.760 lb.



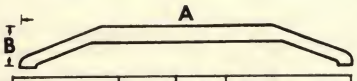
Number	A	B	Weight per foot	Number Grooves
P3650	3"	1/2"	.658 lb.	5
38651	3"	1/2"	.721 lb.	3
4704	4"	5/8"	.963 lb.	5
P3651	4"	1/2"	.787 lb.	5
19047	4"	1/2"	.829 lb.	5
4705	5"	5/8"	1.147 lb.	6
P3662	5"	1/2"	1.002 lb.	5
19048	5"	1/2"	1.102 lb.	6
4706	6"	5/8"	1.291 lb.	7
P3663	6"	1/2"	1.189 lb.	5
19049	6"	1/2"	1.226 lb.	7
26638	7"	1/2"	1.777 lb.	9



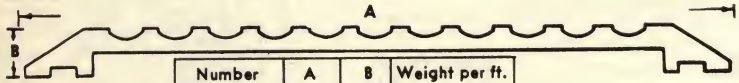
4708
Weather Strip Section

for Thresholds
5192 20999 38658
4805 10353 P3704
38649 P3798

16-Foot Random Length

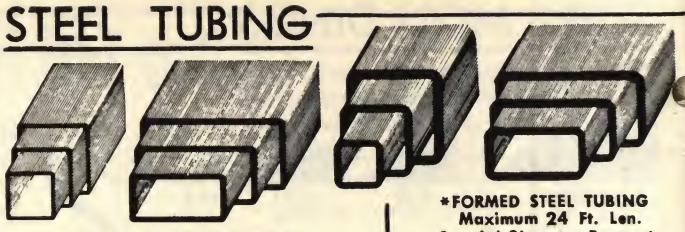


Number	A	B	Weight per ft.
4802	2 1/2"	1/4"	.402 lb.
4803 or 10351	3"	1/4"	.476 lb.
4804 or 10352	4 5/64"	1/2"	.894 lb.



Number	A	B	Weight per ft.
4807 or 7032	7 1/2"	1/2"	1.798 lb.
7883	7 1/2"	1/2"	1.769 lb.

STEEL TUBING



MECHANICAL STEEL TUBING
Electrically Welded
HOT ROLLED PICKLED AND OILED
20 Ft. Lengths

Square

3/8" x 3/8" x 18	1 1/4" x 1 1/4" x 16
1/2" x 1/2" x 16	1 1/4" x 1 1/4" x 14
5/8" x 5/8" x 16	1 1/2" x 1 1/2" x 16
3/4" x 3/4" x 16	1 1/2" x 1 1/2" x 14
7/8" x 7/8" x 16	1 3/4" x 1 3/4" x 14
1" x 1" x 16	2" x 2" x 14
1" x 1" x 12	2 1/2" x 2 1/2" x 14
1" x 1" x 11	3" x 3" x 14

Rectangular

3/8" x 1" x 16	1 1/4" x 2" x 14
1/2" x 1" x 16	1 1/4" x 2 1/2" x 14
5/8" x 2" x 14	1 1/4" x 3 1/2" x 14
1/2" x 1 1/2" x 16	1 1/2" x 2" x 14
3/4" x 1 1/2" x 16	1 1/2" x 2 1/2" x 14
1" x 1 1/2" x 14	1 1/2" x 3" x 14
1" x 2" x 14	1 1/2" x 3 1/2" x 16
1" x 2 1/2" x 14	1 1/2" x 3 1/2" x 14
1" x 3" x 14	2" x 3" x 14
1" x 3 1/2" x 14	2" x 4" x 14

STEEL TUBING — Heavy Wall
HOT ROLLED PICKLED AND OILED
20' TO 24' RANDOM LENGTHS

Square	Rectangular
+1" x 1" x (.073") 15Ga	+1 1/2" x 2 1/2" x .145"
1" x 1" x .120"	2" x 3" x .180"
+1 1/4" x 1 1/4" x .135"	2" x 4" x .180"
+1 1/2" x 1 1/2" x .140"	3" x 4" x .180"
+2" x 2" x .145"	2" x 5" x .180"
+2 1/2" x 2 1/2" x .188"	3" x 5" x .180"
3" x 3" x .180"	3" x 6" x .180"
3 1/2" x 3 1/2" x .180"	4" x 6" x .180"
4" x 4" x .180"	
4" x 4" x .250"	

+ Hot Rolled Only

***FORMED STEEL TUBING**
Maximum 24 Ft. Len.
Special Sizes on Request

Square

2 1/2" x 2 1/2" x 3/16"	5" x 5" x 3/16"
3" x 3" x 3/16"	6" x 6" x 3/16"
3" x 3" x 1/4"	6" x 6" x 1/4"
3 1/2" x 3 1/2" x 3/16"	6" x 6" x 3/8"
3 1/2" x 3 1/2" x 1/4"	7" x 7" x 3/16"
4" x 4" x 3/16"	7" x 7" x 1/4"
4" x 4" x 1/4"	7" x 7" x 3/8"
4" x 4" x 3/8"	8" x 8" x 3/16"
5" x 5" x 3/16"	8" x 8" x 1/4"
5" x 5" x 1/4"	8" x 8" x 3/8"

Rectangular

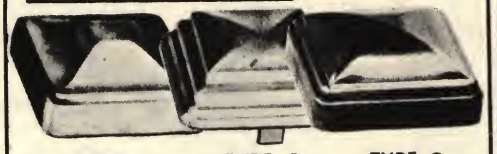
2" x 3" x 3/16"	4" x 5" x 3/16"
2" x 3" x 1/4"	4" x 5" x 1/4"
2" x 4" x 3/16"	4" x 6" x 3/16"
2" x 4" x 1/4"	4" x 6" x 1/4"
2" x 4" x 3/8"	4" x 7" x 3/16"
2" x 5" x 3/16"	4" x 7" x 1/4"
2" x 5" x 1/4"	4" x 8" x 3/16"
2" x 5" x 3/8"	4" x 8" x 1/4"
3" x 4" x 3/16"	5" x 6" x 3/16"
3" x 4" x 1/4"	5" x 6" x 1/4"
3" x 5" x 3/16"	5" x 7" x 3/16"
3" x 5" x 1/4"	5" x 7" x 1/4"
3" x 6" x 3/16"	5" x 8" x 3/16"
3" x 6" x 1/4"	5" x 8" x 1/4"
3" x 7" x 3/16"	6" x 7" x 3/16"
3" x 7" x 1/4"	6" x 7" x 1/4"
3" x 8" x 3/16"	6" x 8" x 3/16"
3" x 8" x 1/4"	6" x 8" x 1/4"

Special Tubing
for Box Stringers on Stairs

10" x 2" x 3/16"
12" x 2" x 3/16"

* This material is formed from hot rolled steel plate, fully welded with the seams ground smooth and can be furnished in 2 foot to 24 foot lengths or cut to size up to 24 feet at no extra cost.

POST CAPS



TYPE A TYPE B TYPE C

TYPE A
POLISHED ALUMINUM AND POLISHED BRONZE

Square	Rectangular	
1" x 1"	2 1/2" x 2 1/2"	2" x 3" / 3" x 6"
1 1/4" x 1 1/4"	*3" x 3"	2" x 4" / 3" x 8"
1 1/2" x 1 1/2"	3 1/2" x 3 1/2"	3" x 4" / 4" x 6"
* 2" x 2"	+4" x 4"	3" x 5" / 4" x 7 1/2"
		3" x 5 1/2" / 4" x 8"

* When ordering 2", 3" & 4" Square Caps Specify "Round Inside" or "Square Inside" Corners

TYPE A CAST IRON

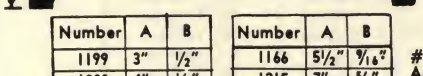
Square	Rectangular
1" x 1"	2" x 3"
1 1/4" x 1 1/4"	2" x 4"
1 1/2" x 1 1/2"	2" x 5"
2" x 2"	3" x 4"
2 1/2" x 2 1/2"	3" x 5"
3" x 3"	3" x 6"
3 1/2" x 3 1/2"	3" x 8"
4" x 4"	4" x 6"
4 1/2" x 4 1/2"	4" x 7 1/2"
	4" x 8"

TYPE B
CAST IRON
POLISHED ALUMINUM
POLISHED BRONZE
Square
3" x 3" 4" x 4"

TYPE C
PRESSED STEEL OR STAINLESS STEEL
Square
3" x 3" 4" x 4"

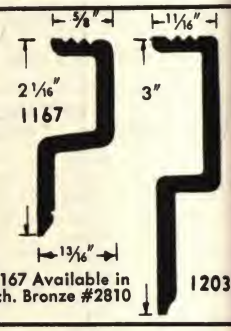
STEEL THRESHOLDS and NOSINGS

20 Foot Random Lengths *Measurements Approximate*



Number	A	B
1199	3"	1/2"
1200	4"	1/2"

Number	A	B
1166	5 1/2"	9/16"
1215	7"	5/8"

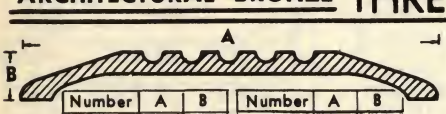


#1167 Available in Arch. Bronze #2810

ARCHITECTURAL BRONZE THRESHOLDS

Spec.—Copper 58%, Zinc 38¾%, Lead 3¼%

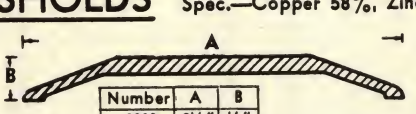
16-Foot Random Lengths
Measurements Approximate



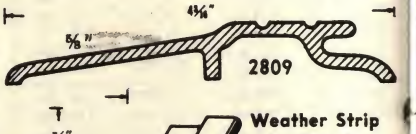
Number	A	B
2883	3"	5/16"
2804	4"	1/2"
2804 1/2	4 1/2"	1/2"

Number	A	B
.2805	5"	1/2"
2806	6"	1/2"
* 2807	7"	5/8"

* 20 Ft. Length



Number	A	B
2880	2 1/2"	1/4"
2881	3"	1/4"
2882	4"	1/2"



Weather Strip Section for 2809 and 2892

7540 McCormick Blvd.
Skokie, Illinois
Chicago Phone: ROgers Park 1-4600

J. G. Braun Company
Direct line Philadelphia to New York: ENTERPRISE 6268

537 West 35th St.
New York 1, N. Y
Phone: BRyant 9-8528



AIA FILE NO. 15

FISKE

architectural metalwork



102nd year catalog

AIA FILE NO. 15

J. W. FISKE ARCHITECTURAL METALS, INC.
formerly... J. W. FISKE IRON WORKS
113-117 PENNSYLVANIA AVENUE, PATERSON, N. J.

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1858-1960

. . . over a century of fine metalwork by FISKE

For over 100 years the House of Fiske has executed architectural metal work including entrances, doors, partitions, grilles, railing, facias, verandas, etc. for the exterior and interior of homes and institutions designed by architects of wide reputation. In our 101 years of close cooperation with architects and builders, we have shown them that to specify **"Aluminum, Bronze, Stainless Steel, or Iron, either Wrought or Cast, Framed, Assembled and Fabricated by Fiske"** is to specify the finest in workmanship, materials and experience. This experience is available to architects interested in custom work of special design—faithfully reproduced by master craftsmen.

Member of National Association of Architectural Metal Manufacturers

recent installations

Allstate Insurance Company Building
Huntington, L. I., New York
architects: Fordyce & Hamby
contractor: E. W. Howell Company

Bankers Trust Company, Empire State Building
Fifth Ave. & 34th St., New York, N.Y.
architects: Shreve, Lamb & Harmon Associates
contractor: Diesel Construction Co., Inc.

Bermudian Theatre, Hamilton, Bermuda
architects: Urbahn, Brayton & Burrows
contractor: Hutchings & Milani, Ltd.

B.O.A.C. and Quantas Empire Airways
Fifth Avenue, New York, N.Y.
architects: Voorhees, Walker Smith & Smith
contractor: Starrett Brothers and Eken, Inc.

Ithaca Senior High School, Ithaca, New York
architect: Perkins and Will
contractor: Titchener Iron Works

First National Bank & Trust Co., Augusta, Ga.
architects: Eve & Stulb
contractor: Clarence Mobley Const. Co.

First-Second National Bank, Wilkes Barre, Pa.
architect: Lacy, Atherton and Davis
contractor: Sordoni Construction Company

Jewish Hospital of Brooklyn, N.Y.
St. Marks Avenue Addition
architect: Charles B. Meyers
contractor: Castagna & Son, Inc.

R. C. A. Laboratories
Field Laboratory #3, Princeton, N. J.
architect: Shreve, Lamb and Harmon Associates
contractor: Matthews Construction Co.

Sabena Belgian World Airlines
New York International Airport
architects: Michael Saphier Associates
contractor: Boriss-Breslow Corp.

front cover

Architectural Aluminum and Stainless Steel Column Covers, Entrances, Facia and Show Window Frames.
International Business Machine World Headquarters Building, New York
architect: Eliot Noyes and Associates
contractor: E. W. Howell Company



bronze entrance
Nazareth Bank & Trust Co.
Nazareth, Pa.
architect: Tilghman-Moyer & Co.
contractor: E. C. Machin, Inc.

stainless steel main entrance
Bethlehem Steel Company, Printery Building
architect: McKim Mead and White
contractor: E. C. Machin, Inc.





bronze railing

National Biscuit Company, Fairlawn, New Jersey
Research Development Building

architect: Owner
contractor: Walter Kidde Constructors, Inc.



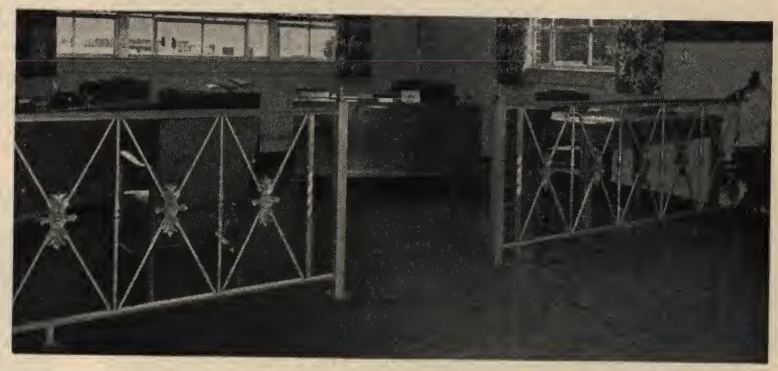
aluminum stair rail

Terminal Construction Corp.
Wood-Ridge, New Jersey

architects: Silverman & Cika Associates

contractor: Terminal Construction Corp.

Selected as the June, 1958, "Stair of the Month" by *Architectural Metals*, official publication of National Association of Architectural Metal Manufacturers.



aluminum bank railing

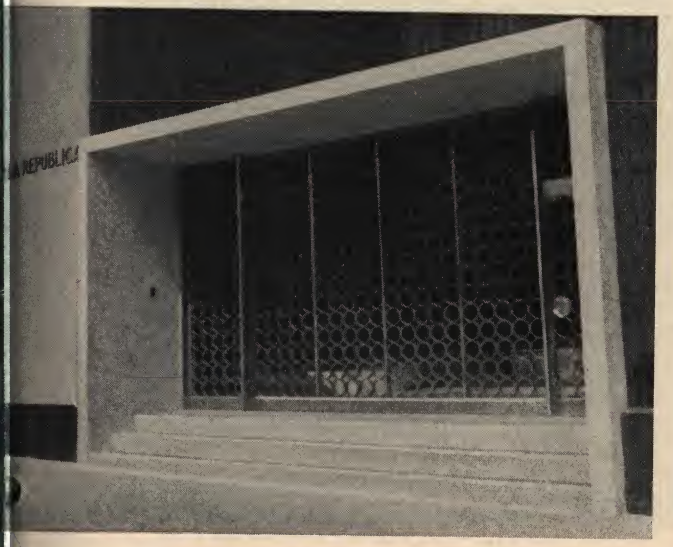
Connecticut National Bank, Milford, Conn.

architects: Lindsay and Johnson
contractor: Gellatly Const. Co.

stainless steel entrance

Banco de la Republica, Barranquilla, Columbia, South America
Main entrance: stainless steel ring design
20′ wide x 10′ high, includes
12′ double slide gate
3′ single swing gate

engineers—contractors: Cornelissen Salzedo CIA





aluminum railing

rails, 2½″ x ¾″, rectangular aluminum bar, posts, 1½″ square, square aluminum bar

Municipal Building and Library,
East Paterson, N.J.

architect: Thomas A. Federico

contractors:
Lafayette Iron Works, Inc.

verandas • pilasters • friezes

cast metal verandas

Cast metal verandas and railings furnished by Fiske have long enhanced the beauty of many of the nation's fine homes. Now these ornamental works add their charm not only to homes but to hospitals, banks, restaurants, hotels, shopping centers and public buildings.

original patterns

We have accumulated a great variety of original patterns of the Smyser—Royer Company of York, Pennsylvania, established in 1840. Many combinations can be obtained and new designs are being added continually.

specifications

Ornamental Cast Metal Work shall be fabricated and assembled by J. W. Fiske Architectural Metals, Inc., 113-117 Pennsylvania Ave., Paterson, N.J., using their design #( ). Pilaster framing shall be 1″ square solid bars with all joints welded and ground smooth. Railing shall be constructed with 1″ square bottom rail, top rail to be 1″ x ½″ with ¾″ half round handrail. Castings shall be aluminum double face (or single face, if indicated as such in Catalog) and shall be drilled and tapped and attached to framing with countersunk machine screws. Welding of Castings to framework shall NOT be permitted.

All material shall be painted one prime coat and shall be shipped ready for erection in panels convenient for handling. This contractor shall submit shop drawings for approval before proceeding with fabrication.

by test

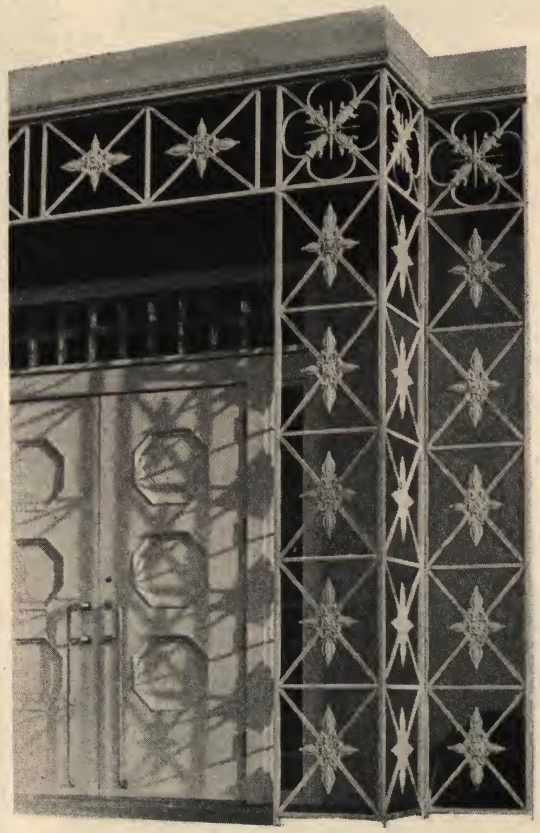
Fiske corner pilasters 7′-3″ high with 1″ solid framing will carry a load of 10,000 pounds. Flat pilasters of the same dimensions 2,000 pounds.





design 74, double face

pilasters 12 9/16″ wide, special frieze 5½″ wide, cresting: design #161
Connecticut National Bank, Milford, Conn.
architects: Lindsay and Johnson
contractor: Gellatly Const. Co.



▲ design C-14, double face

pilasters and frieze 22″ wide, castings 20″ x 23″
also made in 12″ wide pilaster and frieze with castings 10″ x 11½″
B.P.O.E. Elks Lodge No. 682, Jacksonville, Ill.
architects: Smith, Kratz & Strong

◀ design C-12, double face

pilasters and frieze 12″ wide
Leber Funeral Home, Union City, N.J.
architect: Leonard Feinen
contractor: Selbach-Meyer Iron Works



design C-10, double face

pilasters 12½″ wide, #102 railing
Southern New England Telephone Building
architect: Douglas Orr



design C-15, double face

pilasters 16″ wide, frieze 12″ wide
1″ square framing
Orlando, Florida



design C-18, double face

pilaster and frieze 10½″ wide
1″ square framing
Brookville, Long Island
architect: James W. O'Connor

design C-17, double face

pilasters 13½″ wide
Hickory, North Carolina
architect: Aiji Tashiro



design C-3, double face

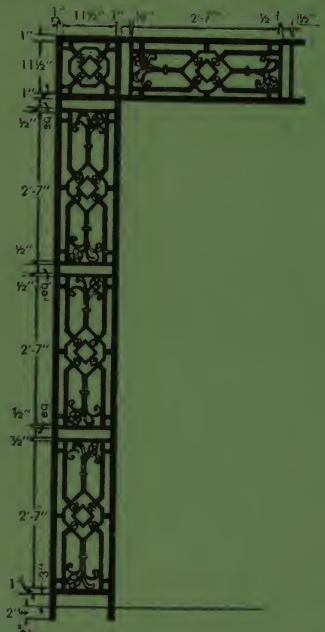
pilasters, 12½″ wide
Nurses' Home, Princeton, N.J.
architects: York and Sawyer



cast veranda and railing design



design C-17, double face
pilaster 13½" wide



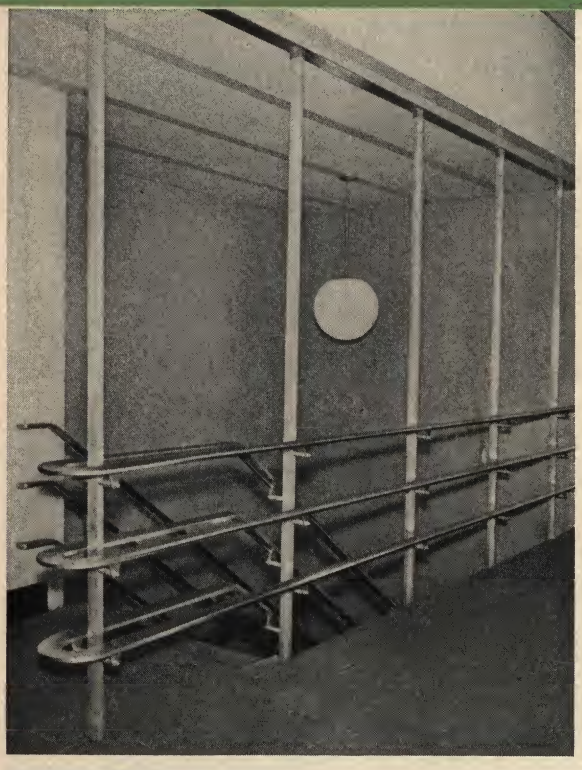
design C-16, double face
pilaster 13½" wide



design C-21, double face
pilaster 11½" wide
architects: Adams & Prentice



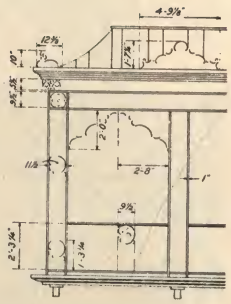
design 73, double face
pilaster 10½" wide
architects: Sheperd & Sterns



"BLUMCRAFT" aluminum railing
rails: design #112; posts: design #250
Public Service Coordinated Transport Office Building
Maplewood, New Jersey
architects: Textonic Associates
contractors: Wortmann & Sons

design 69

showing general idea of dimensions; different designs have slight variations





design 69, double face
pilaster 11½" wide
Reiffton, Pennsylvania
architect: Elmer H. Adams



design 69, double face

	component parts	*width*	*height*
A1	railing	9½″	27¼″
A	pilaster and frieze	9½″	24 ″
B	bracket	32 ″	24 ″
C	center roof orna.	57⅛″	19¼″
D	corner roof orna.	12⅝″	10 ″
E	pilaster	9½″	9½″
F	drop ornament	23 3/16″	5½″
G	pilaster start	9½″	15¾″
69A	bracket	32 ″	11¾″



design 70, double face

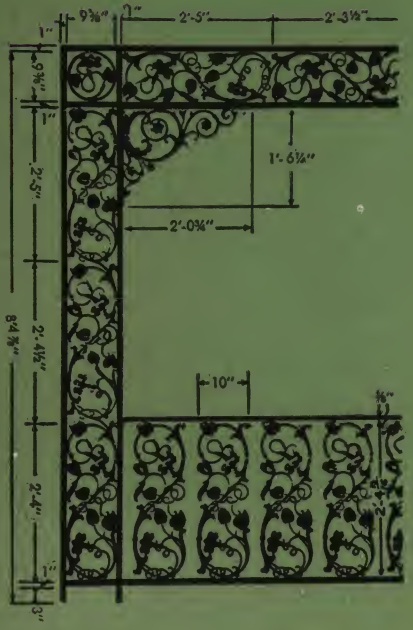
	component parts	*width*	*height*
A	railing	13 ″	29½″
B	bracket	37¼″	37¼″
C	roof ornament	13¾″	12⅞″
D	pilaster & frieze	9 ″	18 ″
E	pilaster	9 ″	9 ″
F	drop ornament	29 ″	4 ″
70A	bracket	25 ″	25 ″



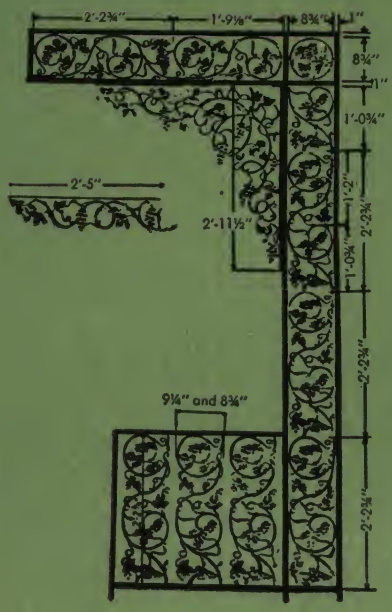
design 70, double face

Lord & Taylor, Bridal Salon
Fifth Avenue, New York City
director of interior display:
E. M. Tallman

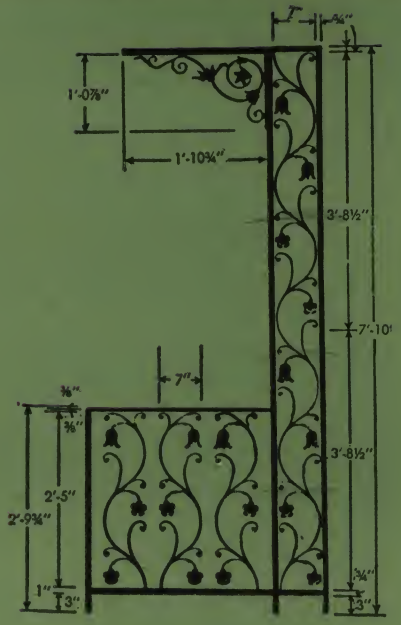
cast veranda and railing design *continued*



design 79, double face
pilaster 11⅜" wide
1" square framing
bracket #74 A



design 75, double face
pilaster 10¾",
11¼" or 18" wide
1" square framing



design 173, double face
pilaster 8½" wide
¾" square framing
bracket #8



combination of designs 74 and 71 frieze, double face
Stouffer's
Restaurant
Philadelphia, Pa.
architect:
George Daub



design 74, double face
pilasters 12 9/16" wide
Brown University, Providence, R.I.
architects:
Perry, Shaw & Hepburn, Kehoe & Dean

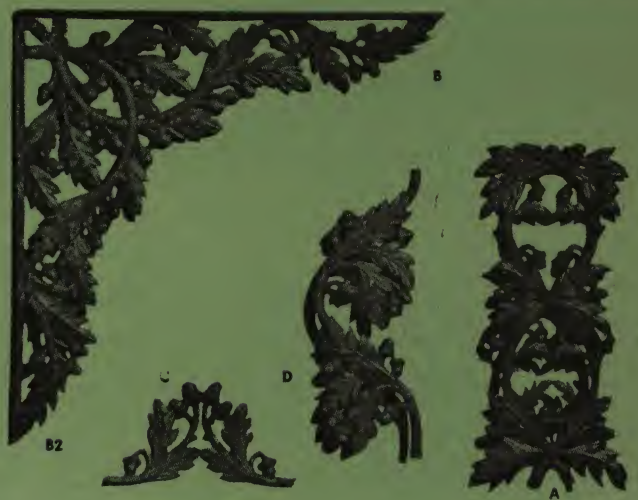


design 102, double face
pilasters and
frieze 13½" wide
Chestnut Hill, Pa.
architect:
J. Linerd
Conarroe



design 72, double face

pilasters 11″ wide
Wyomissing, Pennsylvania
architect: Ernest Haberstroh



design 72, double face

component parts	*width*	*height*
A railing	12½″	28 ″
B bracket	35¾″	35¾″
B2 bracket	14 ″	10½″
C roof ornament	14½″	8⅝″
D pilaster & frieze	9 ″	23½″
F drop ornament	29 ″	4 ″



design 75, double face

pilasters 10¾″ wide
Philadelphia, Pa.
architects:
Willing, Sims and Talbutt



combination design

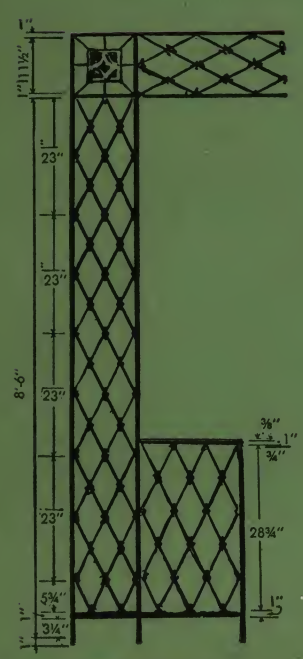
pilasters #134, 30″ wide
frieze #74
Ashville, North Carolina
architect:
Henry Irven Gaines



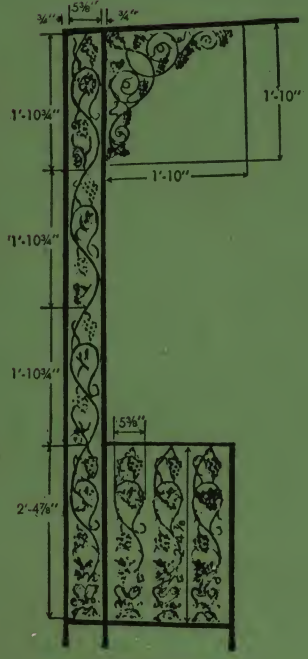
design 79, double framed

pilasters 15⅜″ wide
Princeton Hospital, Princeton, N.J.
architects: York and Sawyer

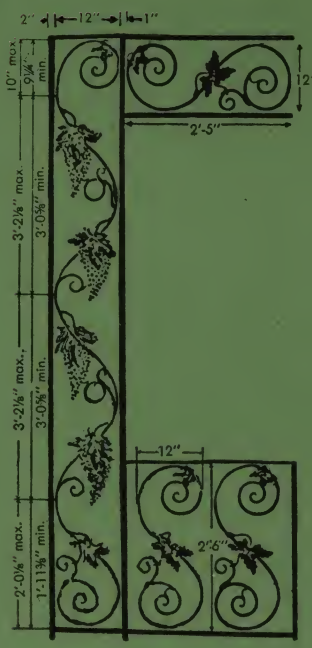
designs and installation



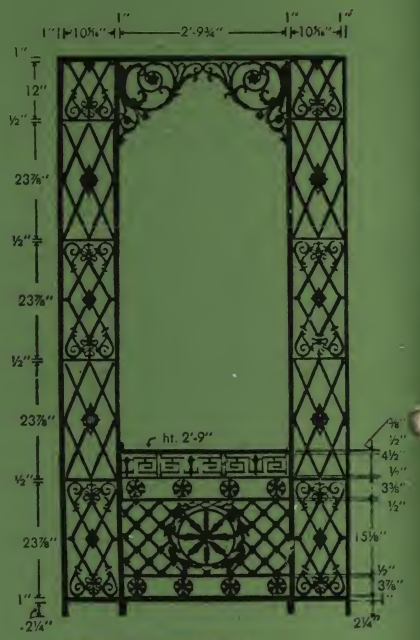
design 102, double face
pilaster 13½″ wide
1″ square framing
architects:
Willing, Sims and Talbutt



design 76, double face
pilaster 7⅜″ wide
¾″ square framing



design 77, double face
pilaster 14″ wide
1″ square framing



design 74, double face
pilaster 12 9/16″ wide
1″ square framing

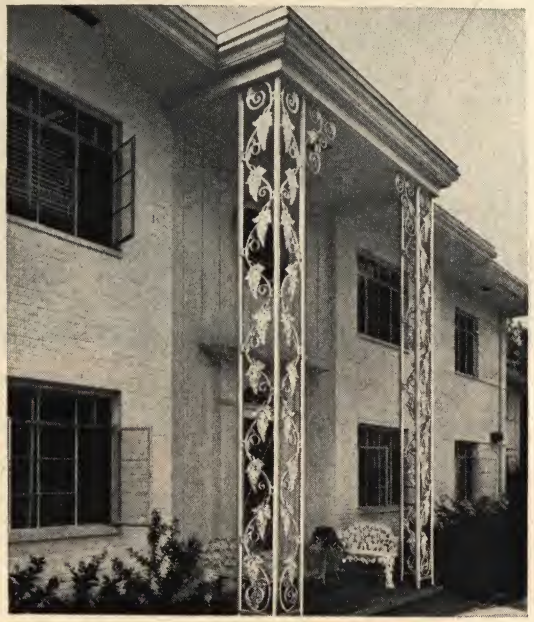
design 74 A, same as 74 except
pilaster 16″ wide
castings 14″ x 21″

wrought iron



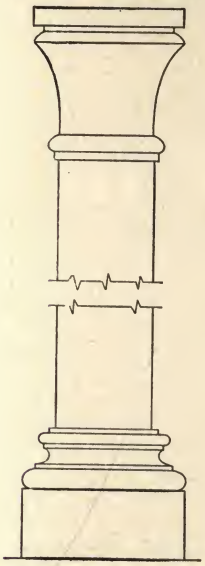
wrought iron stair and railing
private residence, Glen Cove, L.I., N.Y.
architect: Bradley Delahanty
contractor: Emanuel K. Thompson
Selected as "Stair of the Month" for August, 1957

design 77-S
pilasters 18″ wide, using 1½″
square framing bars
architect: Charles W. Connelly



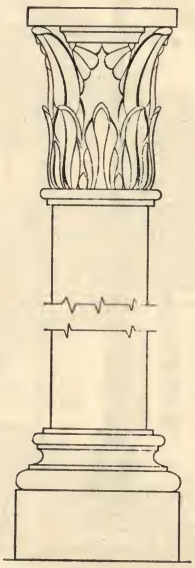
columns

with ornamental cast caps and bases



column: 2⅞″ o. d.
cap: 4½″ square
base: 5″ square

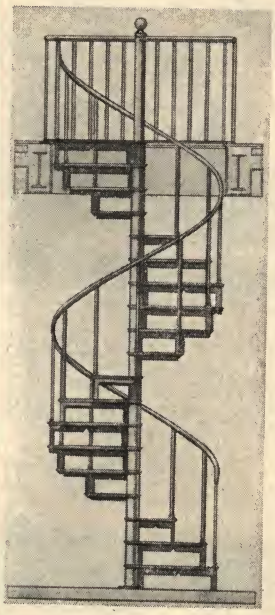
design C-24



design C-20

Special sizes and designs can be furnished on request.

spiral stair



design 819-C no. 300

Made right or left hand (illustration shows right hand). Furnished for all floor heights in diameters of 4′-0″, 4′-6″, 5′-0″, 5′-6″, 6′-0″ and 7′-0″. Twelve or sixteen treads to circle. 8¼″ minimum riser height and 7¾″ for sixteen treads to circle. Allow 2″ clearance all around for Handrail.

specifications

Furnish design #300 semi-open riser Spiral Stair, manufactured by J. W. FISKE ARCHITECTURAL METALS, INC., 113 Pennsylvania Avenue, Paterson 3, New Jersey. Stair to have 12 treads (or 16 treads) to a circle and to be complete with platform; treads and platform to be Cast Iron with checkered abrasive surface, center standard 3½″ outside diameter steel pipe for Stair up to and including 4′-6″ diameter and 4″ up to and including 7′-0″ diameter; furnish necessary railing on Stair and around well. Railing ¾″ square uprights, one to a tread. Handrail 1⅜″ outside diameter. These Stairs can be made completely of Aluminum if desired.

utility items

gratings

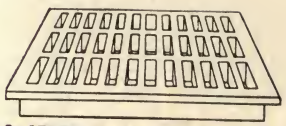


fig 173 FK *(very heavy for concrete)*

Sizes given below do not include the 1 inch flange all around.

length	width	depth
12″	12″	2″
24″	18″ 20″ 24″	3″
36″	24″ 30″ 36″	4″

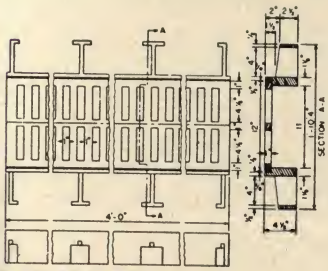


fig 182 AK no. B30

Cast iron grating and curbing.

leader shoes

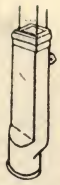


fig 761 HK

For 2″ x 3″, 3″ x 4″, 4″ x 5″ rectangle leader 9″, 12″, 18″, 24″, 30″, 36″, 42″, 48″, 54″, 60″ and 72″ long.

Lugs furnished on shoes 24″ and longer.

fig 766 DK

For round leaders of same lengths. Both types furnished with elbows cast at bottom surface drainage if desired.

ventilators

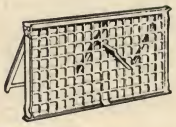


fig 151 BK *(cast aluminum)*

Lite-A-Vent:
grille with 16 mesh rust resistant screen and adjustable glass shutter.
Size: 16″ x 8″

wheel guards *(cast iron)*

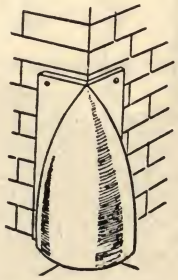


fig 631 K

Cast iron wheel guard.
18″ high, 12″ diameter

fig 640 BK

same as fig 631 K except: angle back plate only, increased to 30″ in height.

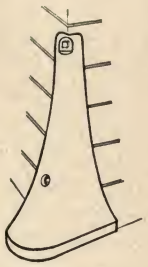


fig 635 K

Cast iron wheel guard.
10½″ projection from corner of wall; 36″ high; 14½″ wide at corner.

steel roadway and garden curbing

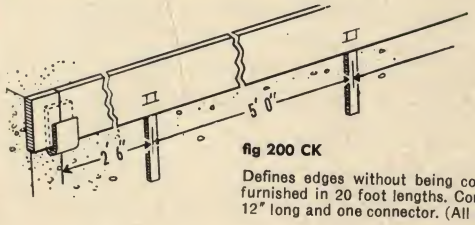


fig 200 CK

Defines edges without being conspicuous. 5″ x ¼″ furnished in 20 foot lengths. Complete with 4 stakes 12″ long and one connector. (All painted green.)

other products

horse stable equipment

In most of the finest stables in this country, Fiske Sanitary Stable and Barn Equipment has been installed. As a result of 102 years of our specialized experience in this construction, hundreds of architects have specified "Stable fittings by Fiske" because they have felt that by so doing they have best served the interest of their clients. Our complete catalog of Stable Equipment will be sent on request to architects.

finials and weather vanes

stainless steel cross and base

Many architects specify "Weather vane or finial shall be made of bronze (or metal desired) according to design, and manufactured and detailed by J. W. Fiske Architectural Metals, Inc.

Cross: shaft and arms 2⅝" square (height of cross 7'-6")

Base: 4'-6" high, overall.

Fluted section: 5¾" diam. x 2'-7¼".

Ball: 12" diameter.

Square base: 14" x 14"

Eastport Methodist Church
Annapolis, Md.
architects: A. Helsel Fink & H. J. Griffin
contractor: George V. Shelton





55 eagle and arrow weather vane

No. 55 Eagle and Arrow Weather Vane 20" wing spread, full bodied, Hand Hammered Copper, furnished in 22 karat gold leaf. One of our many stock designs of Weather Vanes. Mounted on FP-3 Cupola. Cupola 25½" at Base, 29" at roof line, 41" high. Other designs and sizes available.

exterior lighting fixtures

Illustrating a few of our designs of exterior lighting fixtures, made of cast iron, cast bronze or cast aluminum.



189
7'-0" to 10'-0" to bottom of globe.
Base: octagonal, 1'-6½" diameter.



303
9'7-" to 12'-8" overall.
Base: octagonal, 1'-6⅜" diameter.



119
12'-0" overall.
8'-8" to cross arms.
Base: 9" diameter.



275
'PATHFINDER'
Especially designed for walks and driveways.
Height: 2'-6½" overall.
Base: 8" diameter.



height	projection	#
2'-0"	0'-10¾"	412 B
2'-6"	0'-10¾"	412 B1
2'-11½"	1'-4"	412 A
3'-5½"	1'-4"	412 A1
4'-6"	2'-0"	412
5'-3"	2'-2"	412 C



277
4'-0" overall.
Extreme projection 2'-1"



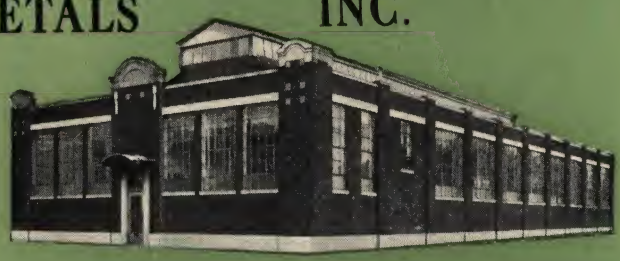
301
3'-10¼" overall.
Projection to center of lantern 1'-6½"
Lantern: octagonal.
Wall plate: 4½" w. by 3'-3" h.

J. W. FISKE ARCHITECTURAL METALS INC.

formerly . . . J. W. Fiske Iron Works

Dedicated since 1858 to the quality production of ornamental iron—now specializing in the fabrication of Architectural Metal Work in ***aluminum, bronze, stainless steel and iron.***

The new name thus defines the expanded scope of the Fiske Organization.



J.W. FISKE ARCHITECTURAL METALS, INC.

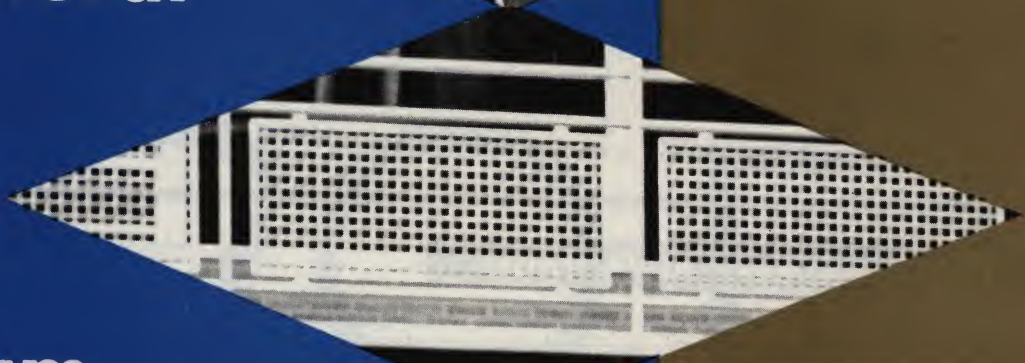
113-117 PENNSYLVANIA AVENUE ● PATERSON 3, NEW JERSEY

established 1858

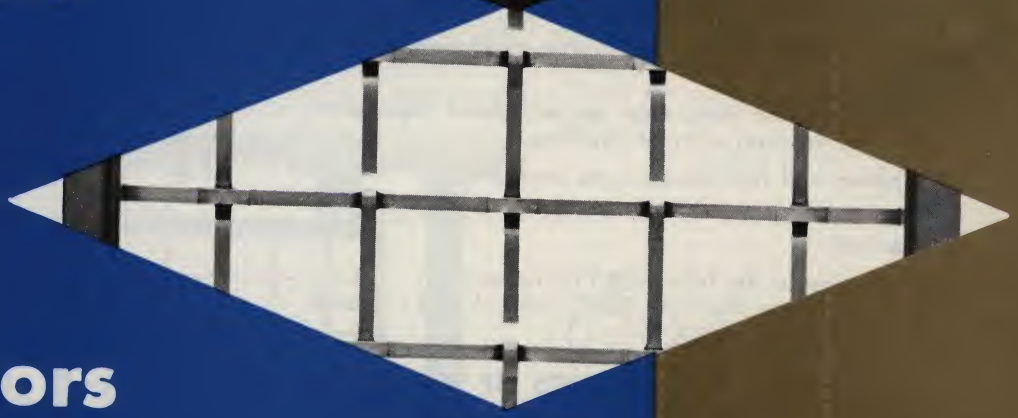
phones: **Paterson:** MUlberry 4-2888; **New York** BArclay 7-4866



architectural



aluminum



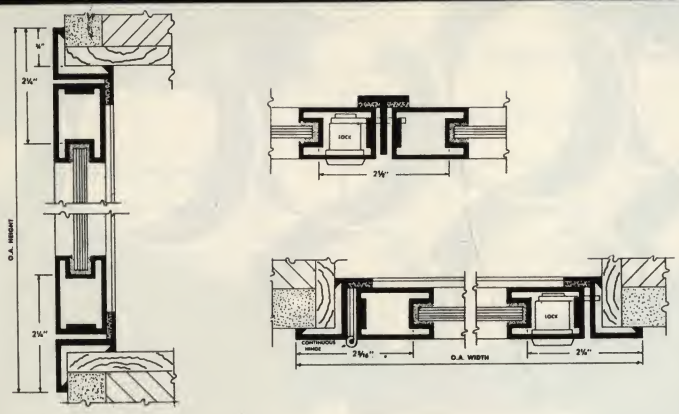
fabricators

HANKINS & JOHANN, Inc.
MANUFACTURERS OF ARCHITECTURAL · METAL PRODUCTS
P. O. BOX 7147 RICHMOND 21, VIRGINIA COLONY 6-2421

SINCE 1919

1960

EXTRUDED SHOW CASE DOORS ¼ SIZE





- Mitered corners with dovetailed corner supports.
- Cylinder lock.
- Continuous piano hinge.
- Plain or in color.
- Adaptable to new and existing work.

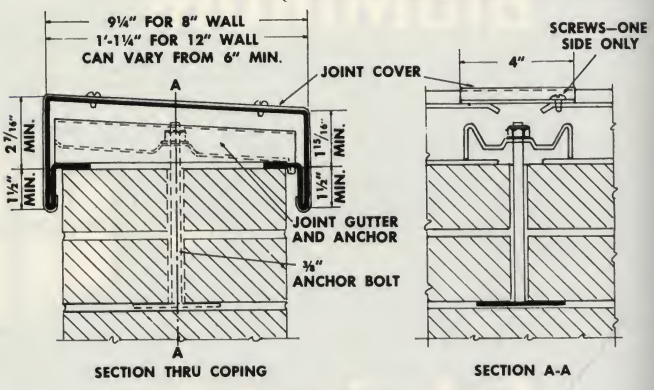
- Recommend single door not to exceed 15 sq. ft.
- Mitered corners will disassemble to allow easy installation of glass.

H & J COPING ADVANTAGES

- Ties to wall with anchor bolts welded to aluminum plate as wall is built. Anchor bolts and plate are of aluminum painted with bituminous paint.
- Modern—Trim—Maintenance Free.
- Cover cap and joint gutter give permanent water-tightness.
- Sections under cover caps can withstand expansion and contraction without caulking.
- Coping and installation costs competitive.
- Can be furnished to any radius or wall angle desired.
- Available in the following thicknesses: B & S Gauge No. 14 (.064"), No. 11 (.091"), and No. 8 (.125").

CONTACT US FOR COPINGS OF SPECIAL DESIGN

- Finishes: Mill—Anodized Plain or Color.
- Standard Length: 10 or 12 Feet.
- Anchor Bolt Spacing { 10'—1½" C to C for 10' length. 12'—1½" C to C for 12' length.



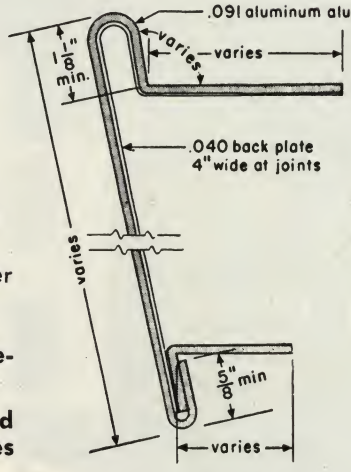
TYPE K COPING
Has continuous wall bearing both sides

ALUMINUM FASCIA AND GRAVEL STOP COMBINATIONS

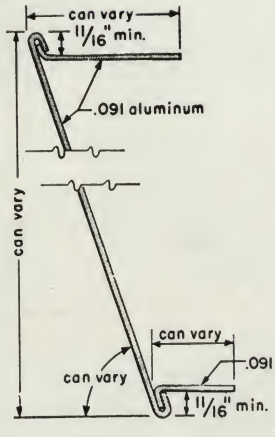
advantages of H & J fascia and gravel stop

1. .040 back-up plates furnished between sections.
2. Top edge 4" and bottom edge 2" are standard.
3. Standard length 12'-0".
4. Finishes—plain and color anodized.
5. All shapes anodized after forming.

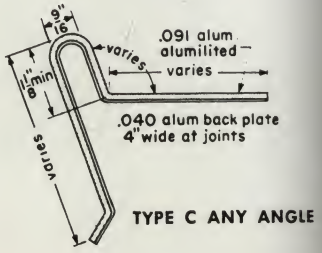
- **we invite inquiries for designs now shown**
- **send your own designs and specifications for estimates and recommendations**



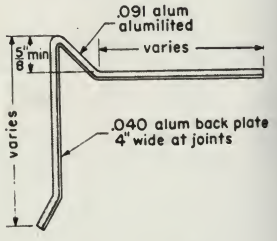
TYPE A ANY ANGLE



TYPE B

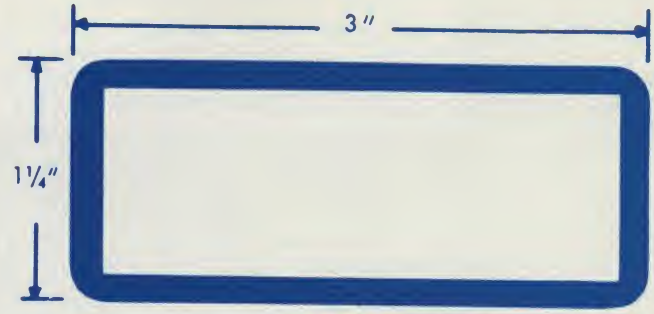


TYPE C ANY ANGLE

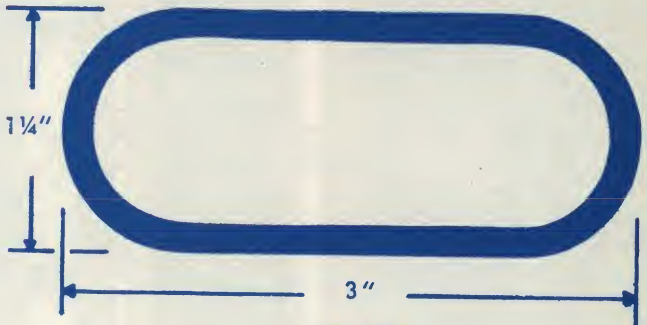


TYPE D

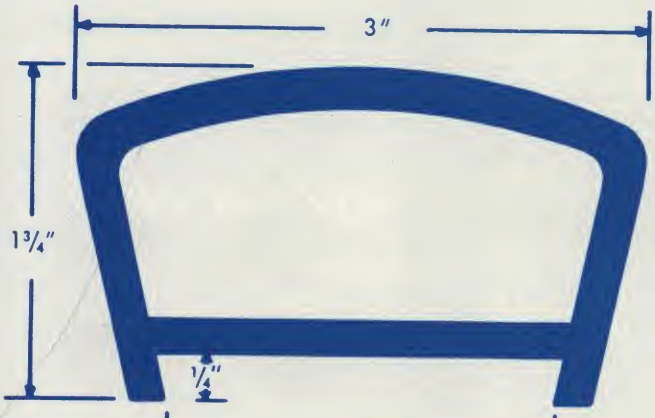
ALUMINUM RAILS FULL SIZE



HR-157



HR-459

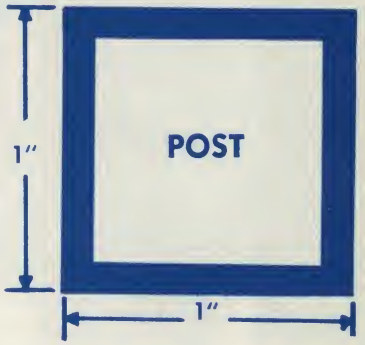


HR-257



1¼″ 2″

1½″ 2½″



1¼″ x 1¼″ 1¾″ x 1¾″

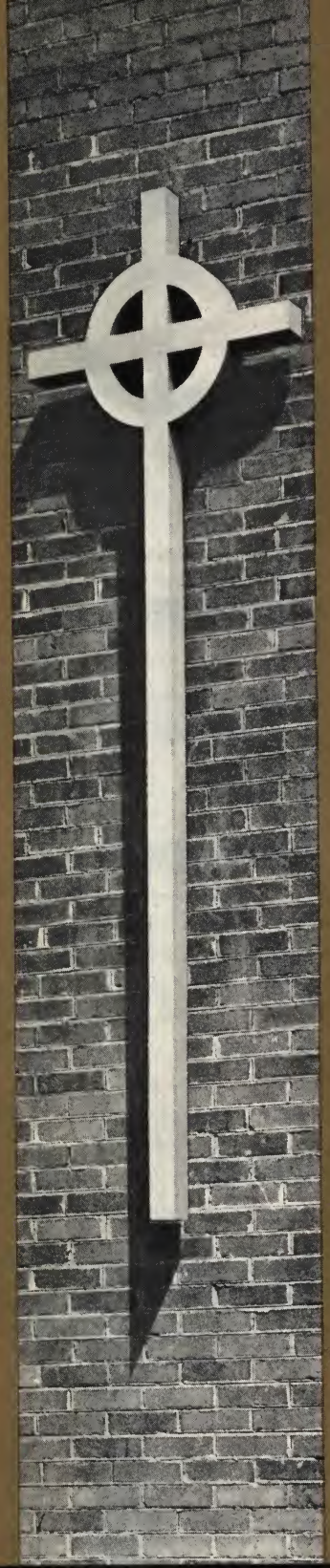
1½″ x 1½″ 2″x 2″

Other shapes and designs available



Exclusive

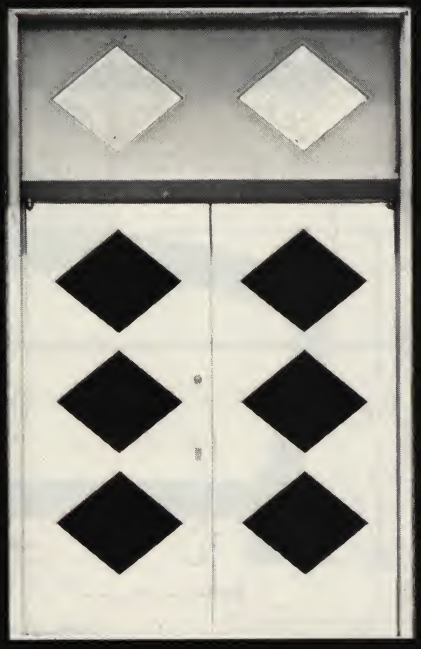
Now, Hankins & Johann offer a new concept in aluminum railing. It is available in striking, anodized Architectural colors — gold, blue, or gray — as well as in 204 A1 or 204 A1 R1 standard alumilite finish.

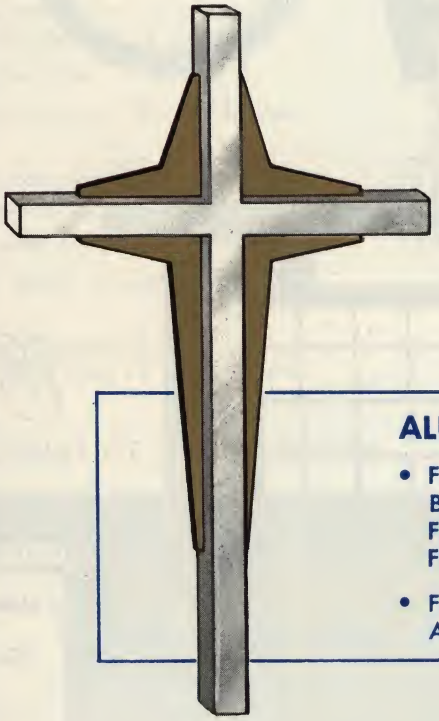




CUSTOM ALUMINUM DOORS

- FABRICATED TO YOUR SPECIFICATIONS
- FINISHES: ALUMILITED PLAIN OR ARCHITECTURAL COLORS





ALUMINUM CROSSES

- FABRICATED FROM: EXTRUDED BARS, CHANNELS, TUBES, OR FORMED SHEET—TO YOUR SPECIFICATIONS
- FINISHES: ALUMILITED PLAIN OR ARCHITECTURAL COLORS

a few of the buildings for which H & J furnished metal products

SINCE 1919

Baltimore, Md.	Gunther Office Bldg. Tyler, Ketchum & Meyer, Arch.
Detroit, Mich.	Eastland Shopping Center Victor Gruen Associates, Inc.
East Detroit, Mich.	Roosevelt School Clair W. Ditchy, Arch.
Ft. Lauderdale, Fla.	Broward National Bank Office of Alfred Easton Poor, Arch. Florida State University Gymnasium Bldg. William B. Harvard, Arch. Guy C. Fulton, Arch. to Board of Control
Ft. Meade, Md.	N.S.A. Building Fort George Meade Anderson & Nichols & Co., Arch.
Richmond, Va.	Seaboard Air Line Railroad Office Bldg. Baskerville & Son, Hankins & Anderson Willow Lawn Shopping Center Joseph H. Saunders, Arch.
Colonial Stores:	William G. Bursnall, Arch. Asheville, N. C. Norfolk, Va. Goldsboro, N. C. Roanoke, Va. High Point, N. C.

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...the new dimension in freedom of design!



Created in SPECTRA-COLORS
and GEOMETRIC PATTERNS
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interior and exterior
applications





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- Sun deflectors
- Decorative wall panels
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- Column Facings
- Window Guards
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- Parapet and Terrace Railings
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COLORS:

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- Gold
- Blue
- Copper Pink
- Green
- Black
- Brass
- Red

. . . and in a range of sunfast architectural colors including Clear Anodized, Sunfast Black, Sunfast Blue, Sunfast Brass and Sunfast Gold.

Cover Credits;

Coral Ridge National Bank
Ft. Lauderdale, Florida
Architect: William G. Crawford

Colorado Federal Savings
Denver, Colorado
Architect: William C. Muchow

Cuyahoga Savings Association
Parma, Ohio



New Building: Frank M. Magnuson, owner
Miami, Florida
Architects:
Pancoast, Ferendino, Skeets & Burnham



Upholstery Leather Group and NOFA Exhibit
Design Center, New York City
Verne Currie, A.I.D.
Richard Plumer Business Interiors, Inc.



Colorado Federal Savings
Denver, Colorado
Architect: W. C. Muchow



Hialeah High School
Hialeah, Florida



Southern Bell Telephone and Telegraph
Pompano Beach, Florida
Architect: *Reynolds, Smith and Hills*



Peoples Savings Bank
Bridgeport, Connecticut



Residence
Chestnut Hill, Massachusetts
Architect: Paul Rudolph

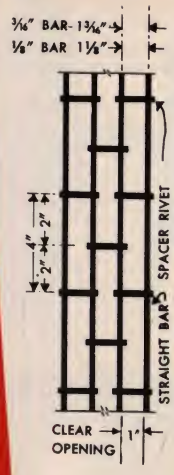


Bodine Electric Company
Chicago, Illinois
Architects: *Skadberg-Olsen Co. Chicago, Illinois*



Cuyahoga Savings Association
Parma, Ohio

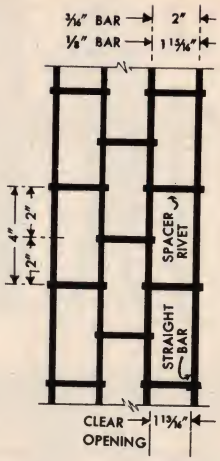
for New Construction or Modernization!



SPECIFICATIONS: KLEMP ANOTEC TYPE D

Fabricated with straight bars on 1 1/8" & 1 3/16" centers, with spacer rivets riveted to straight bars on 4" centers, alternately spaced 2" apart.

ANOTEC—TYPE D		STYLES I & II		STYLE III	
Symbol	Straight Bar Size	Spacer Rivet 1" lg.	Nominal Weight Lbs. Per Sq. Ft.	Spacer Rivet 1" lg.	Nominal Weight Lbs. Per Sq. Ft.
1	3/4" x 1/8"	3/4" x 1/8"	1.49	3/4" x 1/8"	1.49
1X	3/4" x 3/16"	3/4" x 3/16"	2.12	3/4" x 3/16"	2.12
2	1" x 1/8"	3/4" x 1/8"	1.89	1" x 1/8"	1.99
2X	1" x 3/16"	3/4" x 3/16"	2.70	1" x 3/16"	2.84
3X	1 1/4" x 1/8"	3/4" x 1/8"	2.30	1 1/4" x 1/8"	2.49
3	1 1/4" x 3/16"	3/4" x 3/16"	3.26	1 1/4" x 3/16"	3.54
4X	1 1/2" x 1/8"	3/4" x 1/8"	2.69	1 1/2" x 1/8"	2.98
4	1 1/2" x 3/16"	3/4" x 3/16"	3.83	1 1/2" x 3/16"	4.25
5	1 3/4" x 3/16"	1" x 3/16"	4.54	1 3/4" x 3/16"	4.95
6	2" x 3/16"	1" x 3/16"	5.11	2" x 3/16"	5.66
7	2 1/4" x 3/16"	1" x 3/16"	5.67	2 1/4" x 3/16"	6.37



SPECIFICATIONS: KLEMP ANOTEC TYPE E

Fabricated with straight bars on 1 15/16" & 2" centers, with spacer rivets riveted to straight bars on 4" centers, alternately spaced 2" apart.

ANOTEC—TYPE E		STYLES I & II		STYLE III	
Symbol	Straight Bar Size	Spacer Rivet 1 13/16" lg.	Nominal Weight Lbs. Per Sq. Ft.	Spacer Rivet 1 13/16" lg.	Nominal Weight Lbs. Per Sq. Ft.
1	3/4" x 1/8"	3/4" x 1/8"	1.02	3/4" x 1/8"	1.02
1X	3/4" x 3/16"	3/4" x 3/16"	1.48	3/4" x 3/16"	1.48
2	1" x 1/8"	3/4" x 1/8"	1.25	1" x 1/8"	1.36
2X	1" x 3/16"	3/4" x 3/16"	1.82	1" x 3/16"	1.97
3X	1 1/4" x 1/8"	3/4" x 1/8"	1.49	1 1/4" x 1/8"	1.70
3	1 1/4" x 3/16"	3/4" x 3/16"	2.17	1 1/4" x 3/16"	2.47
4X	1 1/2" x 1/8"	3/4" x 1/8"	1.72	1 1/2" x 1/8"	2.03
4	1 1/2" x 3/16"	3/4" x 3/16"	2.51	1 1/2" x 3/16"	2.96
5	1 3/4" x 3/16"	1" x 3/16"	3.00	1 3/4" x 3/16"	3.45
6	2" x 3/16"	1" x 3/16"	3.34	2" x 3/16"	3.94
7	2 1/4" x 3/16"	1" x 3/16"	3.69	2 1/4" x 3/16"	4.43

Note: The clear opening remains constant at all times, and the center to center of straight bars varies with the thickness of straight bars.
Both straight bars and spacer rivets are fabricated from Aluminum Alloy 6063-T5.

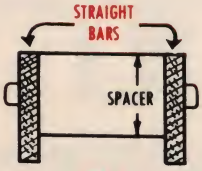
PANEL WIDTH CONSTANT CHART

TYPE	St. Bar Thickness	DIMENSIONS SHOWN ARE FULL SPACES OUT TO OUT OF STRAIGHT BARS																				
		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
D	1/8"	0'11 3/8"	1'0 1/2"	1'1 5/8"	1'2 3/4"	1'3 7/8"	1'5"	1'6 1/8"	1'7 1/4"	1'8 3/8"	1'9 1/2"	1'10 5/8"	1'11 3/4"	2'0 7/8"	2'2"	2'3 1/8"	2'4 1/4"	2'5 3/8"	2'6 1/2"	2'7 5/8"	2'8 3/4"	2'9 7/8"
	3/16"	1'0 1/16"	1'1 1/4"	1'2 7/16"	1'3 5/8"	1'4 13/16"	1'6"	1'7 3/16"	1'8 3/8"	1'9 9/16"	1'10 3/4"	1'11 15/16"	2'1 1/8"	2'2 5/16"	2'3 1/2"	2'4 11/16"	2'5 7/8"	2'7 1/16"	2'8 1/4"	2'9 7/16"	2'10 5/8"	2'11 13/16"

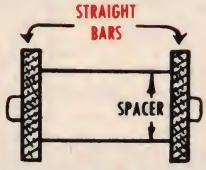
PANEL WIDTH CONSTANT CHART

TYPE	St. Bar Thickness	DIMENSIONS SHOWN ARE FULL SPACES OUT TO OUT OF STRAIGHT BARS																				
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
E	1/8"	5 13/16"	7 7/8"	9 13/16"	11 3/4"	1'1 11/16"	1'3 5/8"	1'5 9/16"	1'7 1/2"	1'9 7/16"	1'11 3/8"	2'1 5/16"	2'3 1/4"	2'5 3/16"	2'7 1/8"	2'9 1/16"	2'11"	3'0 15/16"	3'2 7/8"	3'4 13/16"	3'6 3/4"	3'8 11/16"
	3/16"	6 3/16"	8 3/16"	10 3/16"	1'0 3/16"	1'2 3/16"	1'4 3/16"	1'6 3/16"	1'8 3/16"	1'10 3/16"	2'0 3/16"	2'2 3/16"	2'4 3/16"	2'6 3/16"	2'8 3/16"	2'10 3/16"	3'0 3/16"	3'2 3/16"	3'4 3/16"	3'6 3/16"	3'8 3/16"	3'10 3/16"

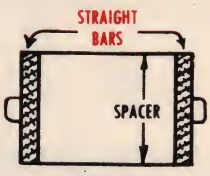
Note: To above standard widths add 1/4" for rivet heads for overall width dimension.



STYLE I
(See Tables for Spacer Rivet Depth)

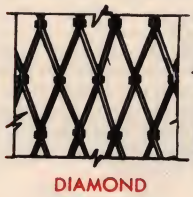


STYLE II
(See Tables for Spacer Rivet Depth)



STYLE III
(Straight Bars & Spacer Rivet Same Depth)

Additional patterns, which are available on special request, are:



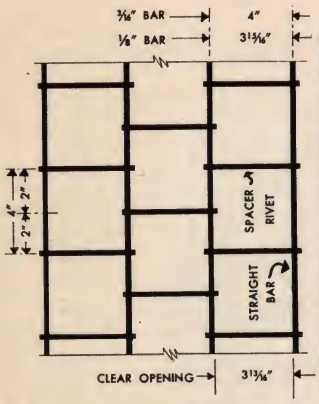
DIAMOND PATTERN



HEXAGON PATTERN



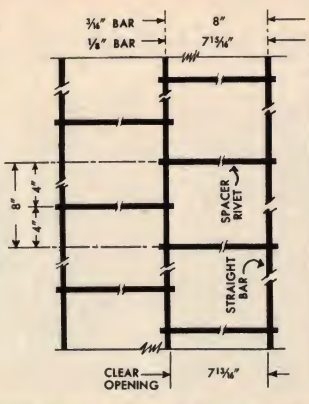
Algiers Desert Inn
Chicago, Illinois
Interior Design: Pascal Equipment, Chicago



SPECIFICATIONS: KLEMP ANOTEC TYPE F

Fabricated with straight bars on 3 15/16" & 4" centers, with spacer rivets riveted to straight bars on 4" centers, alternately spaced 2" apart.

ANOTEC—TYPE F		STYLES I & II		STYLE III	
Symbol	Straight Bar Size	Spacer Rivet 3 15/16" lg.	Nominal Weight Lbs. Per Sq. Ft.	Spacer Rivet 3 15/16" lg.	Nominal Weight Lbs. Per Sq. Ft.
1	3/4" x 1/8"	3/4" x 1/8"	0.68	3/4" x 1/8"	0.68
1X	3/4" x 3/16"	3/4" x 3/16"	1.01	3/4" x 3/16"	1.01
2	1" x 1/8"	3/4" x 1/8"	0.80	1" x 1/8"	0.91
2X	1" x 3/16"	3/4" x 3/16"	1.19	1" x 3/16"	1.34
3X	1 1/4" x 1/8"	3/4" x 1/8"	0.92	1 1/4" x 1/8"	1.14
3	1 1/4" x 3/16"	3/4" x 3/16"	1.36	1 1/4" x 3/16"	1.68
4X	1 1/2" x 1/8"	3/4" x 1/8"	1.04	1 1/2" x 1/8"	1.36
4	1 1/2" x 3/16"	3/4" x 3/16"	1.54	1 1/2" x 3/16"	2.01
5	1 3/4" x 3/16"	1" x 3/16"	1.88	1 3/4" x 3/16"	2.35
6	2" x 3/16"	1" x 3/16"	2.06	2" x 3/16"	2.68
7	2 1/4" x 3/16"	1" x 3/16"	2.24	2 1/4" x 3/16"	3.02



SPECIFICATIONS: KLEMP ANOTEC TYPE G

Fabricated with straight bars on 7 15/16" & 8" centers, with spacer rivets riveted to straight bars on 8" centers, alternately spaced 4" apart.

ANOTEC—TYPE G		STYLES I & II		STYLE III	
Symbol	Straight Bar Size	Spacer Rivet 7 15/16" lg.	Nominal Weight Lbs. Per Sq. Ft.	Spacer Rivet 7 15/16" lg.	Nominal Weight Lbs. Per Sq. Ft.
1	3/4" x 1/8"	3/4" x 1/8"	0.36	3/4" x 1/8"	0.36
1X	3/4" x 3/16"	3/4" x 3/16"	0.53	3/4" x 3/16"	0.53
2	1" x 1/8"	3/4" x 1/8"	0.42	1" x 1/8"	0.47
2X	1" x 3/16"	3/4" x 3/16"	0.63	1" x 3/16"	0.71
3X	1 1/4" x 1/8"	3/4" x 1/8"	0.49	1 1/4" x 1/8"	0.59
3	1 1/4" x 3/16"	3/4" x 3/16"	0.72	1 1/4" x 3/16"	0.88
4X	1 1/2" x 1/8"	3/4" x 1/8"	0.55	1 1/2" x 1/8"	0.71
4	1 1/2" x 3/16"	3/4" x 3/16"	0.82	1 1/2" x 3/16"	1.06
5	1 3/4" x 3/16"	1" x 3/16"	1.00	1 3/4" x 3/16"	1.24
6	2" x 3/16"	1" x 3/16"	1.09	2" x 3/16"	1.41
7	2 1/4" x 3/16"	1" x 3/16"	1.19	2 1/4" x 3/16"	1.59

Note: The clear opening remains constant at all times, and the center to center of straight bars varies with the thickness of straight bars.

Both straight bars and spacer rivets are fabricated from Aluminum Alloy 6063-T5.

PANEL WIDTH CONSTANT CHART

TYPE	St. Bar Thickness	DIMENSIONS SHOWN ARE FULL SPACES OUT TO OUT OF STRAIGHT BARS																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
F	1/8"	4 1/16"	8"	11 15/16"	1'3 7/8"	1'7 13/16"	1'11 3/4"	2'3 11/16"	2'7 5/8"	2'11 9/16"	3'3 1/2"	3'7 7/16"	3'11 3/8"	4'3 5/16"	4'7 1/4"	4'11 3/16"	5'3 1/8"	5'7 1/16"	5'11"	6'2 15/16"	6'6 7/8"	6'10 13/16"	7'2 3/4"	7'6 11/16"
	3/16"	4 3/16"	8 1/16"	1'0 3/16"	1'4 1/16"	1'8 1/16"	2'0 1/16"	2'4 1/16"	2'8 1/16"	3'0 1/16"	3'4 1/16"	3'8 1/16"	4'0 1/16"	4'4 1/16"	4'8 1/16"	5'0 1/16"	5'4 1/16"	5'8 1/16"	6'0 1/16"	6'4 1/16"	6'8 1/16"	7'0 1/16"	7'4 1/16"	7'8 1/16"

PANEL WIDTH CONSTANT CHART

TYPE	St. Bar Thickness	DIMENSIONS SHOWN ARE FULL SPACES OUT TO OUT OF STRAIGHT BARS																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
G	1/8"	8 1/16"	1'4"	1'11 13/16"	2'7 7/8"	3'3 13/16"	3'11 3/4"	4'7 11/16"	5'3 5/8"	5'11 9/16"	6'7 1/2"	7'3 7/16"	7'11 3/8"	8'7 5/16"	9'3 1/4"	9'11 3/16"	10'7 1/8"	11'3 1/16"	11'11"	12'6 15/16"	13'2 7/8"	13'10 13/16"
	3/16"	8 3/16"	1'4 3/16"	2'0 1/16"	2'8 1/16"	3'4 1/16"	4'0 1/16"	4'8 1/16"	5'4 1/16"	6'0 1/16"	6'8 1/16"	7'4 1/16"	8'0 1/16"	8'8 1/16"	9'4 1/16"	10'0 3/16"	10'8 1/16"	11'4 1/16"	12'0 1/16"	12'8 1/16"	13'4 1/16"	14'0 1/16"

Note: To above standard widths add 1/4" for rivet heads for overall width dimension.

WHEN ORDERING ANOTEC ARCHITECTURAL ANODIZED ALUMINUM GRATING, SPECIFY:

1. Anotec type_____
2. Symbol_____
3. Style_____
4. Architectural Color Finish _____
5. Direction in which straight bars are to run
6. Dimensions of area or areas to be covered
7. Submit sketch of area to be covered showing installation details, etc.

ANOTEC* ARCHITECTURAL COLOR FINISH CHART

NO.	INTERIOR FINISHES	NO.	EXTERIOR FINISHES
1.	Plain Mill Finish	S1	Clear Anodized
2.	Clear Anodized	S2	Sunfast Black
3.	Gold	S3	Sunfast Blue
4.	Blue	S4	Sunfast Brass
5.	Copper Pink	S5	Sunfast Gold
6.	Green	ANOTEC* sunfast color finishes offer a protective surface that increases weather resistance and provides a high degree of color retention far exterior installations.	
7.	Black		
8.	Brass		
9.	Red		

Close color matches may be obtained in any shade upon request.

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Exhibit:

On display at Klemp International in Chicago . . . and at the "Architects International Bureau of Building Products" at the Dupont Plaza Center Building, Miami, Florida

See our catalog on KLEMP GRATING, BRIDGE DECKING, FLOOR ARMORS AND STAIR TREADS elsewhere in this SWEETS Architectural File.



COMPLETE INFORMATION AND SPECIFICATIONS AVAILABLE UPON REQUEST.

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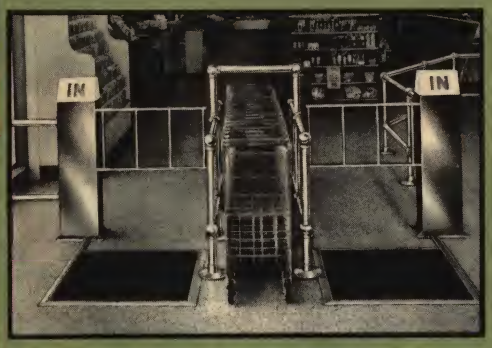
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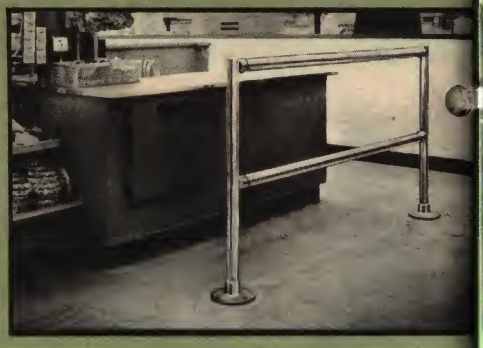
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Traffic flow, in today's mass marketing methods, is as important as the products you sell or the services you present to your customers. Traffic flow to be efficient, to be considerate of both customers and employees, to be profitable requires scientifically designed traffic control equipment.

Lawrence Metal Products is one of America's largest and most experienced designers and manufacturers of this specialized equipment. Lawrence personnel is always aware of the latest developments in mass marketing, mass transportation and construction and can assist you tremendously during the planning stages of your specific business. Your inquiries are invited and consultation is offered without any obligation on your part.

This catalog shows just a few of the many examples of installations of Lawrence railings, posts and ropes. A large and complete stock is always on hand at our suburban plant and immediate delivery is often possible on all items. All items are completely fabricated by Lawrence to exacting quality specifications with specific emphasis on both beauty and long life.



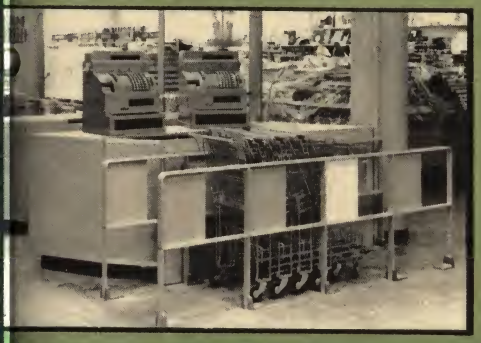
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ASBURY PARK, N. J.



FAIR MART SUPERMARKET
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SCHRAFFT'S RESTAURANT
NEW YORK, N. Y.



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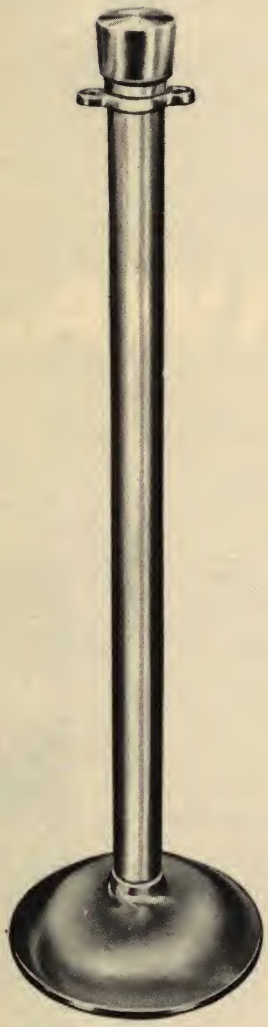
LOEW'S STATE THEATER
NEW YORK, N. Y.

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	portable card holders	
	sand urns	
	ash receptacle	
	exhibit booths	
	bar rails and brackets	

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PORTABLE POSTS



The standard heavy duty post used to guide traffic in the most efficient manner.

In all finishes, post consists of top fitting, choice of loop, upright tube, base and loader.

Total weight of the post is 41 lbs. Shipping weight is 43 lbs.

No. 310-1 Triple chrome plated. Polished or satin finish.
Recommended standard post for indoor use.

No. 310-2 All brass post. Polished or satin finish.

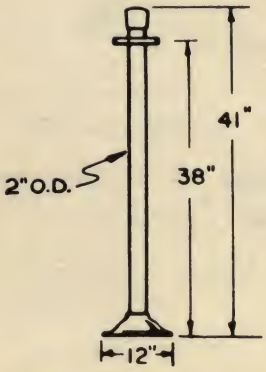
No. 310-3 Stainless steel, satin finish.
Ideal for all indoor and outdoor applications.

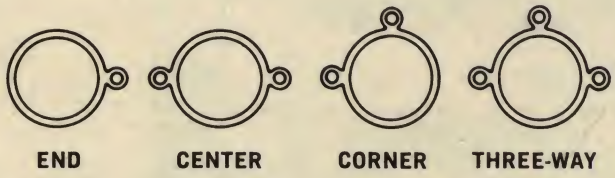
No. 310-4 Aluminum, satin finish.

No. 310-5 Economical baked-on color finish. Available in all standard colors.

No. 310-6 All brass post with cast brass base. Polished or satin finish.

No. 310-7 All brass post with cast brass base. Triple chrome plated.
Polished or satin finish. Used by leading airlines for heavy duty outdoor use.





Specify choice of loop when ordering posts.

Unless otherwise designated on orders, posts will be supplied with center loops.

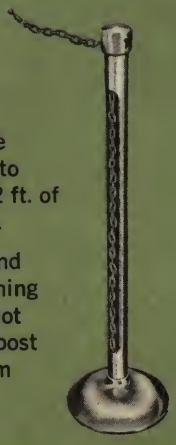


Where a double line of rope is desired an extra loop can be provided at any point on the post. See price list – loop No. 990.

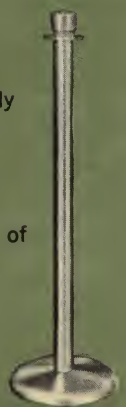
POST WITH CHAIN

Any standard Lawrence post can be modified to accommodate up to 22 ft. of chain within the tube.

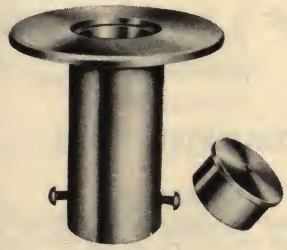
Chain is withdrawn and returned through opening in post top. Keyhole slot on opposite side of post top accepts chain from adjacent post.



No. 318 – Economically designed and constructed for light duty use. Chrome or brass finish. Overall height 39". Diameter of base 12". Net weight 24 lbs.

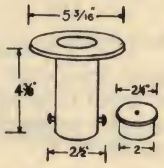


REMOVABLE POSTS AND SOCKETS

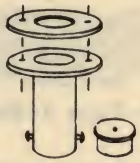


SOCKETS AND CAPS

Sockets are permanently set in floors, either wood or concrete, to accept removable posts. Cap fits flush with surface for neat and safe closing when not in use. Sockets are one piece brass forgings, free of pit-holes, and will not rust. Closed bottom of socket prevents seepage. Floor plate is supplied with rounded edge for surface installation or straight edge for flush installations.



No. 421 Socket and cap for uncarpeted floors.



No. 420 Socket and cap and cover plate for carpet installations.



No. 320 Removable post is used with either No. 420 or No. 421 Socket and cap.

It can be easily lifted from the socket when not required and stored until used again. Will support longer lengths of rope or chain than Portable Posts. Loop is 36" from the floor; outside diameter of tube is 2". Available in same metals and finishes as No. 310 Post.

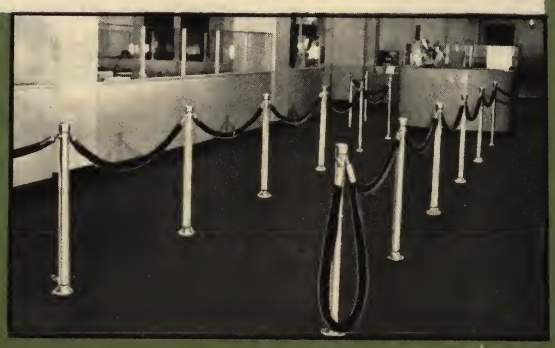
FIXED POST

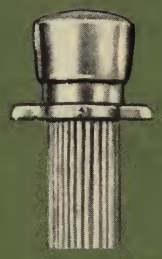
No. 330 Fixed Post is similar to No. 320 except that there is no below-the-floor extension. 5" flange is secured to wood or concrete floor as permanent installation.

Overall height 38½"; loop is 36" from the floor; O.D. of tube 2". Available in same metals and finishes as No. 310 post.









REEDED TUBING—Reeded tubing instead of plain is available on special order for the following posts—Nos. 310-1, 2, 5, 6 and 7 and 330.



KEYHOLE SECUREMENT—Keyhole type post top is available on special order for all posts. For use with No. 5400 Ball type rope end. See page 7.



No. 38 BASE—this heavy-duty base, 14" diameter, has a baked enamel finish. Available with or without hard rubber casters. Tipping of post to 45° angle brings casters into contact with the ground for easy mobility. This base may be substituted for standard base on No. 310 series portable posts at additional cost.



Lawrence covered ropes are the accepted standard of leading architects, designers and decorators. The finest in materials, construction and workmanship mean lasting beauty through a long life of rough service.

STANDARD 1½" DIAMETER ROPE

No. 541—Velour Covered Rope

The velour used is the finest long wearing quality specially treated to resist stains. The colors listed are carried in stock and represent most requirements. If special colors are desired, they are available.

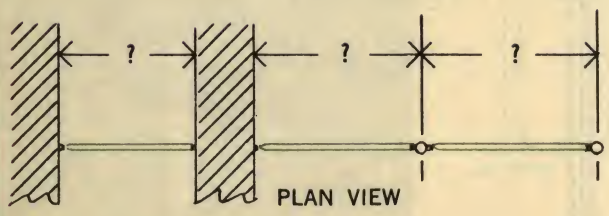
Colors· Maroon, Royal Blue, Hunter Green, Gold, Pearl Gray, Brown, Black and Bright Red.

No. 542—Naugahyde Covered Rope

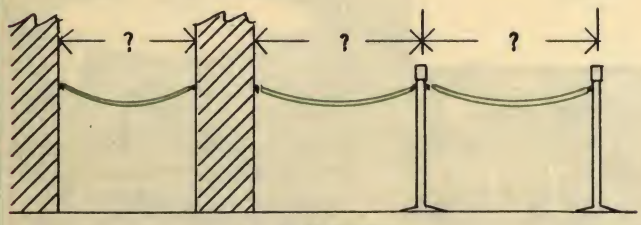
For outdoor use where ropes may be exposed to rain, sun or snow, or for indoor use where they are subjected to heavy wear and require frequent cleaning, Naugahyde is recommended. This washable elastic-backed Naugahyde (a product of U. S. Rubber Co.) is soft and pleasant to the touch, but won't fade or crack. It retains its rich bright color permanently and is abrasion and scuff resistant.

Colors: Wine Red, Blue, White, Brown and Black.

Both No. 541 and 542 are 1½" in diameter. The cotton center is held secure by a strong closely woven braid insuring maintained uniformity of shape. They are used with either No. 540 or No. 550 ends (shown below) as required.

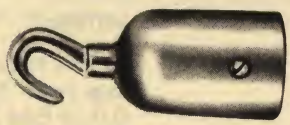


PLAN VIEW

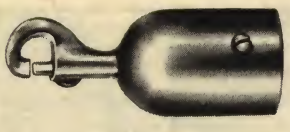


ELEVATION

When ordering ropes, lengths should be specified as indicated above. We will provide necessary slack.



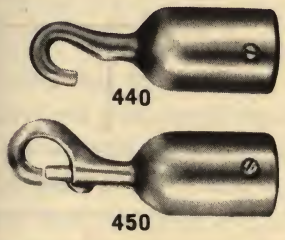
No. 540
Hook-Type Rope End



No. 550
Snap-Type Rope End

All Rope Ends and Wall Plates are available in Chrome or Brass, with either a Polished or Satin Finish.

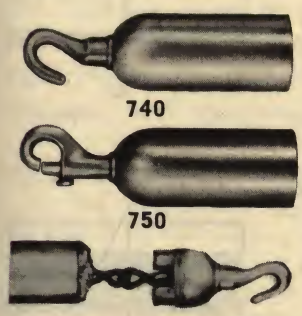
When ropes are ordered to specified lengths along with Rope-Ends, the Rope-Ends are permanently attached to the ropes at no extra charge.



1" DIAMETER ROPE

No. 441 Velour Covered or
No. 442 Naugahyde Covered

Recommended for locations where a rope of smaller diameter fits into the decor. These ropes are identical in construction to No. 541 and No. 542 except that the diameter is 1". These ropes are used with either No. 440 or No. 450 rope ends.



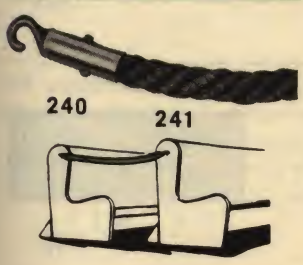
CHAIN CORE ROPE

No. 741 Velour Covered or
No. 742 Naugahyde Covered

Recommended where a rope of great strength Is required.

This 1½" rope has a welded chain core within the cotton center and braid. These ropes are used with either No. 740 or No. 750 rope ends.

Section of chain-core rope illustrates manner in which chain is secured to rope end with thru-bolt.



¾" TWISTED RAYON ROPE

No. 241

Recommended where a small rope may be desired such as for church use at pews. This rope is ¾" in diameter and is stocked in Maroon and Blue and Green. Used with No. 240 rope end.



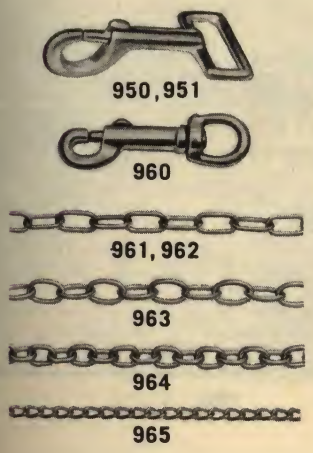
1½" TWISTED COTTON ROPE

No. 331

Recommended for a decorative uncovered rope.

This rope is 1½" in diameter and is compressible to 1" for use with No. 440 or No. 450 rope ends.

Stock colors: Maroon, Hunter Green or White.



SNAP HOOKS for standee tape

No. 950 – Snap Hook for 1½" Standee Tape.

No. 951 – Snap Hook for 2" Standee Tape.

STANDEE TAPE (Webbing)

No. 1541—1½" wide, White or Maroon.

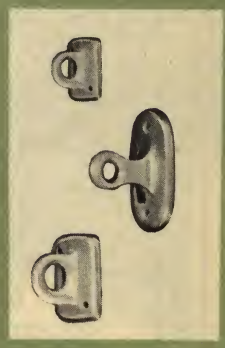
No. 2041—2" wide, White or Maroon.

SNAP HOOK for chain

No. 960—Snap Hooks. For chain links. Available in Brass or Chrome.

Chain available in Brass, Steel, Aluminum, Stainless Steel and Chrome, Butted or Welded links, in a variety of sizes. See Price List.

WALL PLATES AND BRACKETS



No. 509 Wall Plate. Base 1⅝" x 1¼". Extends ⅞" from wall. (Suggested for use with small diameter ropes).

No. 510 Wall Plate. Base 1¾" x 3". Extends 1⅝" from wall.

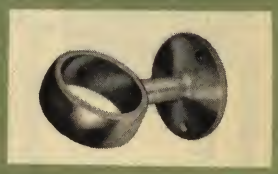
No. 511 Wall Plate. Base 1⅞" x 2⅜". Extends 1½" from wall.



No. 512 Eye-Bolt Wall Plate

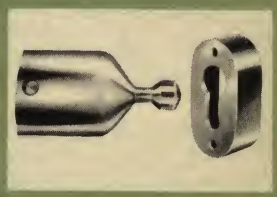
Designed for heavy use (as at Standee Rails in Theatres). 6" threaded bolt is standard.

Section of Standee Rail illustrating Eye-Bolt installation.



No. 515 Wall Braket

Supports 1½" ropes at stair or hall corridors. Bolt thru bracket prevents rope from slipping.

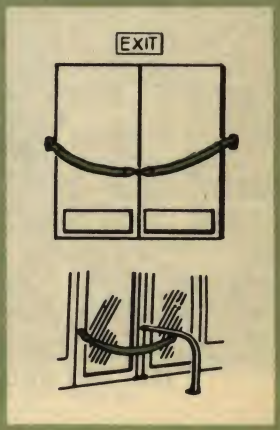


No. 513 Keyhole Wall Plate

1¼" wide x 2½" high x ¾" deep.

No. 5400 Ball Type Rope End

For use with Keyhole type Post tops or wall plates.



No. 1001 – Break-Away. Consists of male and female connectors for use at fire exits. Use with No. 441 or No. 442 rope.

No. 1002 – Break-Away. Consists of male rope end and female wall plate. Used for automatic door assemblies to prevent public from entering wrong door, but opens easily in case of emergency. Used with No. 441 or No. 442 rope.

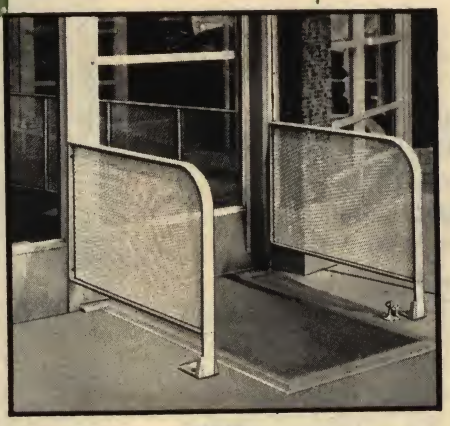
ALUMINUM RAILINGS

	Floor mounted, wall supported.	Free standing, floor mounted.	Wall to wall, floor and wall mounted.
Single line	FWS	FSS	WWS
Double line	FWD	FSD	WWD
Partial grille	FWP	FSP	WWP
Full grille	FWG	FSG	WWG
Offset base	FWS-A, FWD-A, FWP-A, FWG-A		

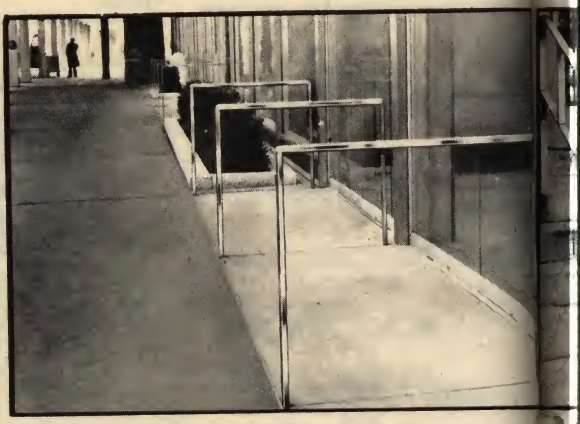
The above styles of rails have been standardized for mass production to be sold at low stock prices. Standard heights are 30", 36", 42" and 48". Standard lengths are 30", 36", 42", 48", 84", 96", 108" and 120". In addition to our stock sizes, we can produce rails in any length or height required at comparable prices.



FWD AND WWD



FWG

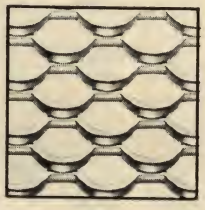


FSS

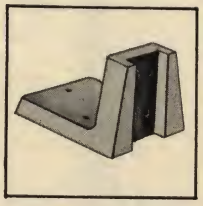
LAWRENCE ALUMINUM RAILINGS

Lawrence Aluminum Railings have an architectural beauty compatable with a variety of architectural styles. Bar stock is ½" x 1¾" and fits flush with standard store front mullions. The railings are satin finished and clear anodized for lustrous beauty, permanance and are maintenance free. Railings are also available in gold anodized aluminum or stainless steel on special order. Although standard designs and sizes are shown on page 8, design possibilities are unlimited and custom work can be done to meet any architectural requirements. All screws are stainless steel and countersunk for safe smooth finish.

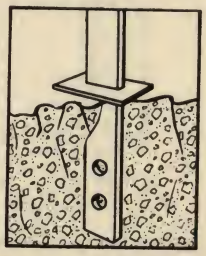
The new tear drop grille design completes the architectural look. Safe and smooth to the touch, it is anodized to match the rail. The grille is permanently set into grooves in the bar stock adding to the beauty, safety and permanence of the railing.



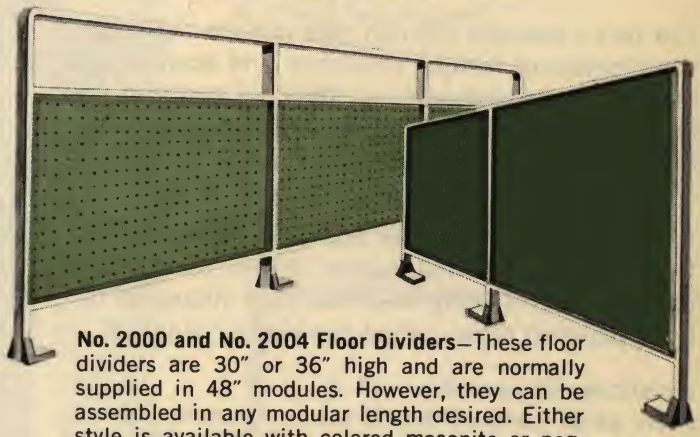
The standard, cast aluminum boot provides a strong, attractive floor securement for cement and wood floors. Lag bolts are furnished with all rails. Expansion shells are also available.



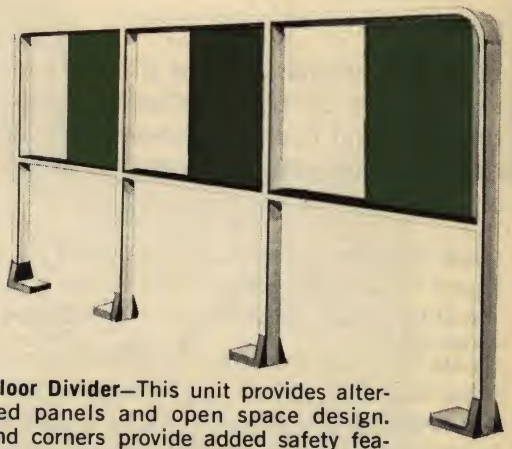
If a "below-the-surface" installation in cement is preferred (instead of the boot), upright will be made 6" longer and finishing floor plate provided.



ALUMINUM FRAMING



No. 2000 and No. 2004 Floor Dividers—These floor dividers are 30" or 36" high and are normally supplied in 48" modules. However, they can be assembled in any modular length desired. Either style is available with colored masonite or pegboard panels. A special hard-surface enamel paint is used in any color.



No. 2005 Floor Divider—This unit provides alternate colored panels and open space design. Rounded end corners provide added safety feature. Upright supports recommended at maximum 48" intervals.

Just one of many possible variations of our aluminum railings.



STAIR RAIL



BALCONY GRILLE



BALCONY GRILLE

TUBULAR RAILINGS

Chrome • Brass • Stainless Steel

The new Lawrence tubular rails provide the proper combination of beauty, efficiency and economy for ideal self service operations. They are prefabricated for easy installation by local carpenters or maintenance employees and can be adapted to a variety of layouts to meet various store operations.

All tubing is heavy gauge and given a special mill finish before the final copper, nickel and chrome platings. High quality stainless steel tubing or lustrous polished brass tubing can also be supplied.

No. 200 Horizontal tubing
Heavy gauge horizontal tubing has a 2" outside diameter. It is cut to exact lengths as required. Measurements should be given from center to center of posts.

SINGLE LINE



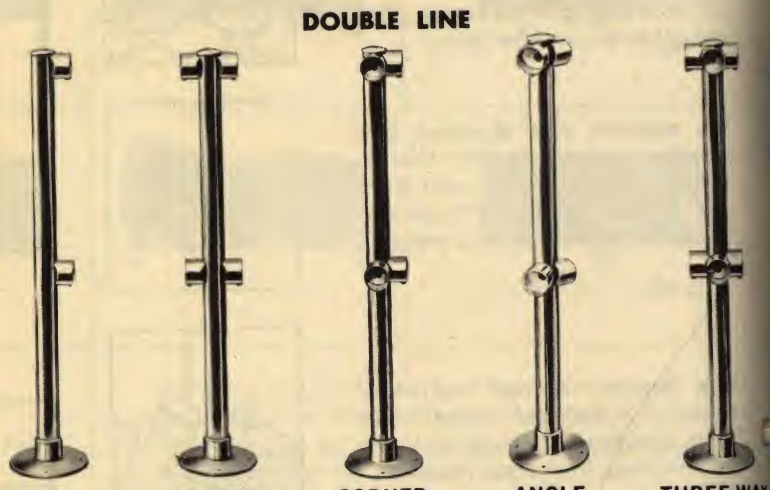
END | CENTER | CORNER (90 degrees) | ANGLE (SPECIFY) | THREE-WAY

POSTS

Posts are prefabricated ot 2" heavy gauge tubing and ordered as complete units including fittings, tube, cap and floor securement. They are available and should be specified as end, center, corner, angle or 3-way.

Single line posts are designated by catalog No. 1L.
Double line posts are designated by catalog No. 2L.
The latter part of the catalog number indicates the floor securement as shown below. e.g. "2L7D Corner" indicates a double line corner post with a 7" flange and 7" disc.
Stock heights are 30", 36" and 44" overall.
44" height provides 42" clearance for cart passage.
In addition to stock heights, posts are available in any height desired.

DOUBLE LINE

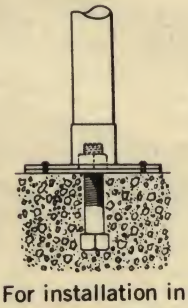


END | CENTER | CORNER (90 degrees) | ANGLE (SPECIFY) | THREE-WAY

FLOOR SECUREMENTS

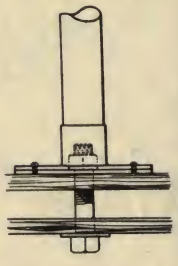
Various floor securements to meet specific requirements are available and illustrated at the right. The type of securement is designated by the catalog number of the post.

POST WITH 7" FLOOR FLANGE AND 7" DISC



For installation in cement floors.

Single Line No. 1L7D
Double Line No. 2L7D



For installation on wood floors with access from below.

Heavy machine screws are provided to secure flange to disc. Center anchor bolt, as shown, available if required.



A. List of parts required as indicated by sketch

B. Sketch submitted showing layout of required rails

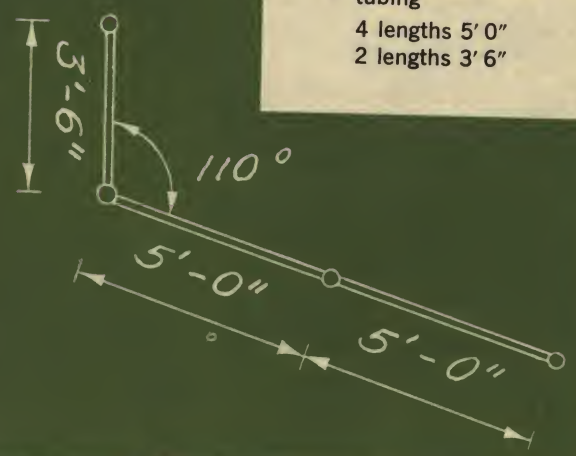
C. Photograph of completed installation

A.

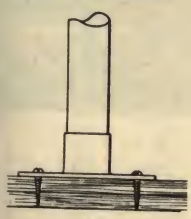
4—No. 2L7 Polished Chrome Post, 36" high
- 2 end posts
- 1 center post
- 1 angle post (110°)

6—No. 200 horizontal chrome tubing
- 4 lengths 5' 0"
- 2 lengths 3' 6"

B.



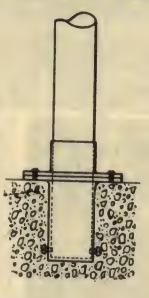
POST WITH 7" FLOOR FLANGE



Single Line No. 1L7
Double Line No. 2L7

For installation on wood or cement floors.

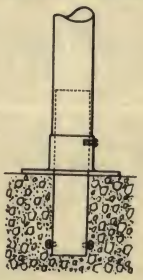
POST WITH 5" FLOOR FLANGE AND SOCKET



Single Line No. 1L5S
Double Line No. 2L5S

For installation in cement floors.*

POST WITH 5" FLOOR FLANGE AND ANCHOR PIPE



Single Line No. 1L5P
Double Line No. 2L5P

For installation in cement floors.

POST WITH 5" FLOOR FLANGE



Single Line No. 1L5
Double Line No. 2L5

For installation on wood or cement floors where heavy pressure is not expected.

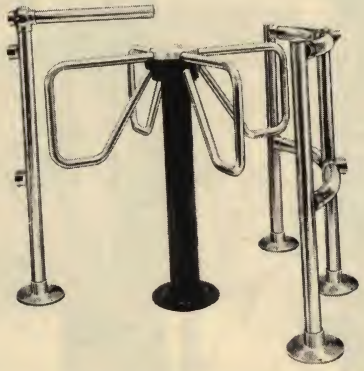
*For installation where rails must be removed for special events — an alternate socket and cap is available. For this type of installation the posts are numbered **1L5S-C** and **2L5S-C**

Turnstiles · Gates · Typical Layouts

TURNSTILE RAILINGS

All elements of turnstile railings and gate assemblies are interchangeable with other standard parts. This includes posts, railings, and floor securements.

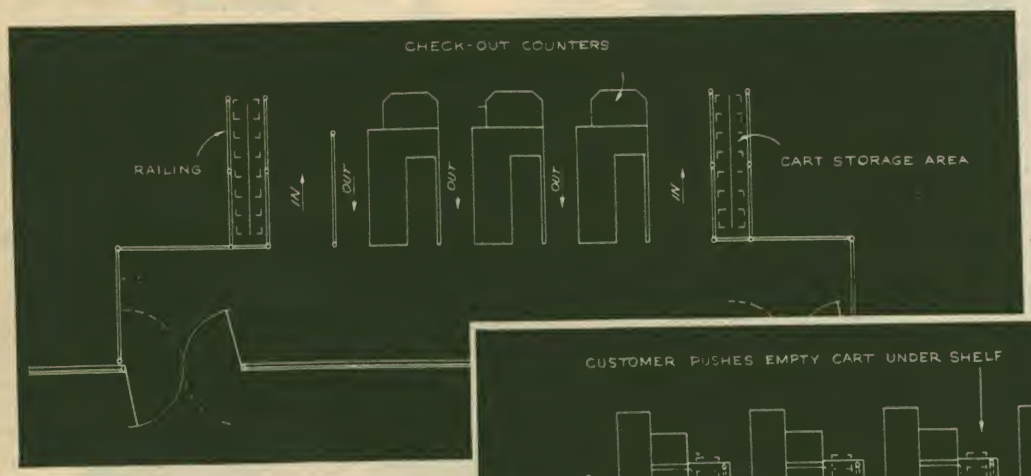
Lawrence rails insure maximum security at check-out areas. Our experienced staff of engineers, thoroughly familiar with the problems of self-service traffic guidance, is prepared to assist in the solution of any layout problems.



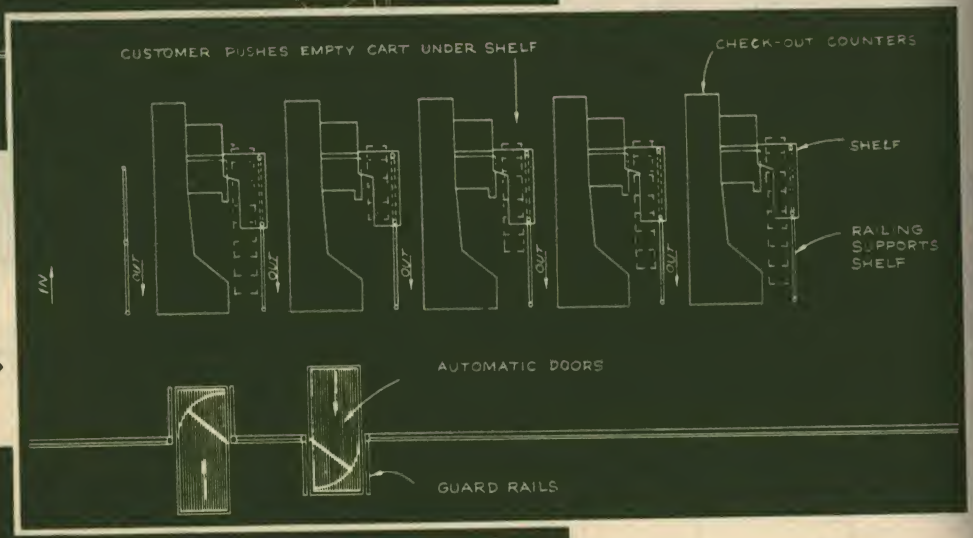
No. 2L7-T Double Line Turnstile Railing assembly.
Shown with No. 20 Perey Turnstile.



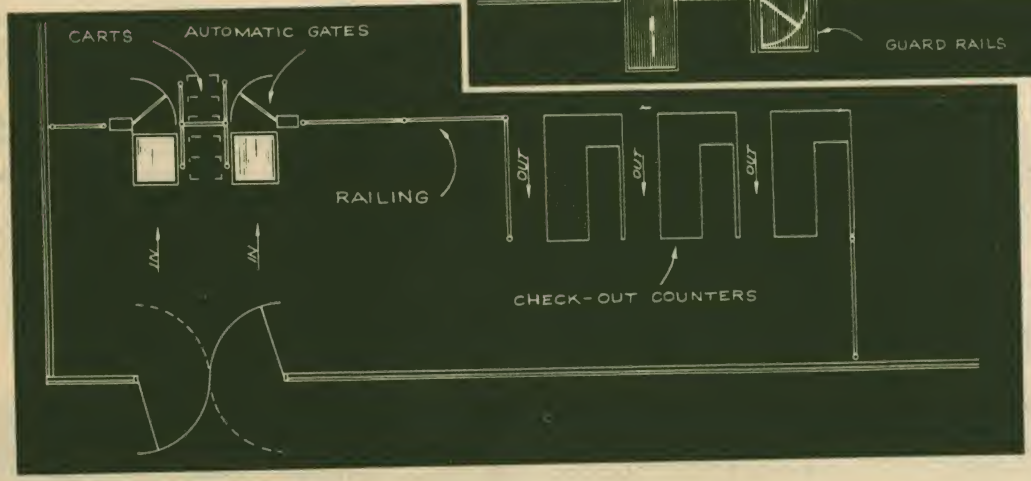
No. 1L7-T Single Line Turnstile Railing assembly.
Shown with No. 80 Perey Turnstile.



TYPICAL VARIETY STORE SELF SERVICE LAYOUT



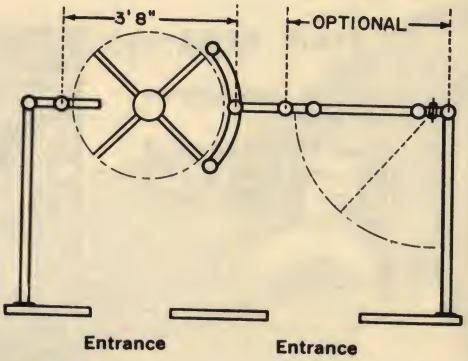
TYPICAL SUPER MARKET LAYOUT WITH CART CONTROL UNITS



TYPICAL DRUG STORE LAYOUT



No. 1L7-ET Economy Turnstile Railing assembly.
Shown with No. 80 Perey Turnstile.



Floor Plan of typical rear entrance of self-service store showing turnstile and emergency exit gate.

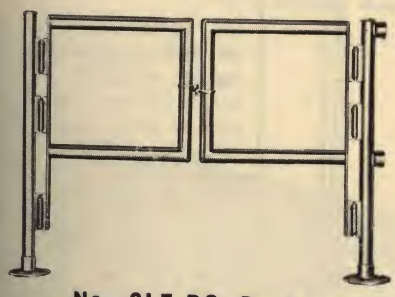
GATE ASSEMBLIES

Gate Assemblies provide for emergency exit and are often needed in order to meet fire department requirements.

Turnstiles allow easy flow of traffic into store area while preventing exit except through check-out area. Complete information on Turnstiles and Automatic Gates available on request.



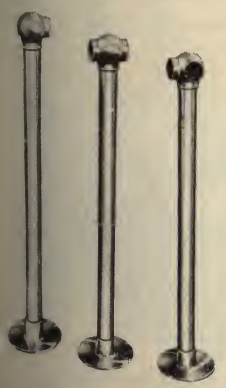
No. 2L7-G Double Line Gate Assembly with caster and Bakelite Sign.



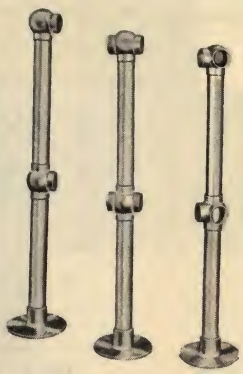
No. 2L7-DG Double swinging Gate Assembly.



No. 1L7-G Single Line Gate Assembly.



No. 210 Series



No. 410 Series

For many years the Lawrence No. 210 and 410 series self service railings have been the accepted standard. Although they are now being replaced by the new 1L and 2L series railings many customers may prefer this style rail or desire it to modify existing installations.

Available in Chrome or brass with 1½" or 2" tubing; in stainless steel in 2" tubing only.

WALL FLANGES



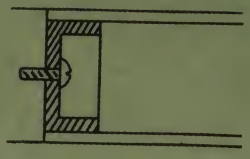
No. 302, outside diameter 4".



No. 304, straight sides. For mounting on surface 2½" wide.



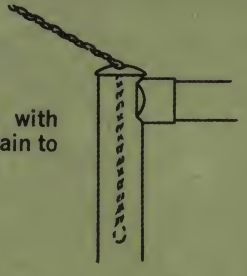
No. 305, blind wall plug. Made to fit inside 2" tube for use on door jamb 2" wide.
(See illustration below).



PLAN VIEW



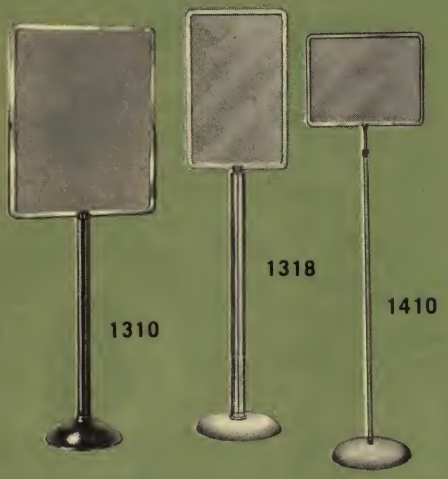
No. 100 Heavy Aluminum Floor Guide
Track keeps carts in line.
Available in any length.
Normally supplied 1 ft. shorter than cart area.



Posts available with disappearing chain to close off aisles.

OTHER PRODUCTS

PORTABLE CARD HOLDERS



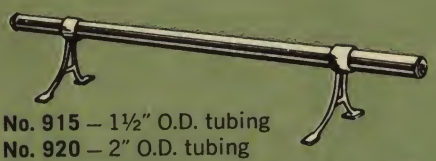
No. 1310 – Mounted on No. 310 Portable Post. Card Frame: 22" x 28" or 14" x 22". Available in chrome or brass.

No. 1318 – Mounted on No. 318 Portable Post. Card Frame: 14" x 22" or 11" x 14". Available in chrome or brass.

No. 1410 – Mounted on 10" base. Upright is 36" adjustable up to 72". Frame 11" x 14" or 7" x 11". Available in chrome only.

Note: All the frames listed hold cards readable from both sides. All above sizes are stock, and are available either horizontally or vertically mounted, but will be supplied as shown unless otherwise indicated. Other sizes can be made to specifications.

BRASS BAR-RAILS AND BRACKETS



No. 915 – 1½" O.D. tubing
No. 920 – 2" O.D. tubing



NO. 900



NO. 902



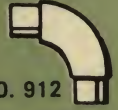
NO. 903



NO. 904



NO. 910
End cap for bar rails



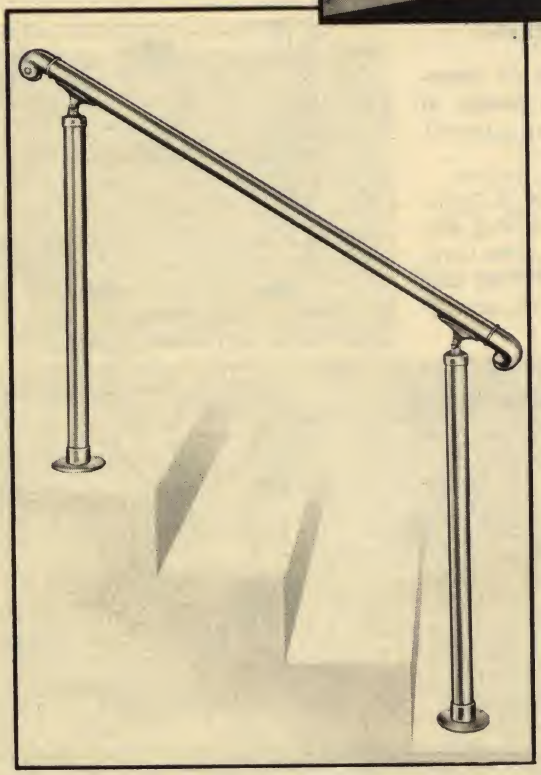
NO. 912
Flush elbow 90° only

STAIR RAILS

Stair Rail using parallel hand rails.

Shown at right is one of the many types of rails that can be fabricated to specifications.

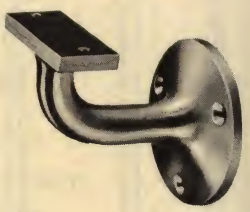




Rail shown at left using **No. 346 Adjustable Pitch Saddle** conforms to the pitch of any stairway. Overall length of the rail is the only measurement required. End Scroll shown is **No. 400.**



No. 975 Wall Bracket for tubular rail.



No. 976 Wall Bracket with flat bed for rectangular stock.

No. 90 — ASH RECEPTACLE



For use on the backs of theatre chairs or on chairs used for meetings or lectures. Also ideal for wash room partitions. Saves many hours of cleaning labor. To empty merely tilt. Approved for use in New York City by the Board of Standards and Appeals. Cal. 938-46-SM. Size 3½" x 3¾" x 1⅜". Cast of Zinc alloy. Grey Hammertone enamel finish. Other colors on quantity special orders only.

LAWRENCE EXHIBIT BOOTHS



The ideal exhibit booth for convention decorators, hotels, schools and auditoriums.

- **Economical**
- **All anodized aluminum**
- **Telescopic horizontal tubing for layout flexibility**
- **Nesting bases**
- **Fireproof draperies**

For information on Lawrence Booths and drapes send for Exhibit Booth Catalog.

SAND URNS



No. 25—A Sand Urn with straight modern lines. Heavy gauge steel, baked-on enamel wrinkle finish of black, green, maroon or grey. Bands of chrome or brass. Aluminum tray to match bands. Height 19", diameter 10".

No. 25-1 with one band only.

No. 25-X with no bands.



No. 31 — A Sand Urn of classic design, but suitable for most decors. Heavy gauge spun aluminum. Weighted base. Height 19", diameter at top 10".



No. 32-A — Sand Urn of all straight lines. Beautiful, satin finish, spun aluminum. Height 19", diameter 10".

All of the above sand urns are also available with a slide tray and water bucket instead of the sand tray.

LAWRENCE METAL PRODUCTS

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LAWRENCE



RAILINGS



LAWRENCE METAL PRODUCTS, INC. • 60-S Prospect Ave. (at Merrick Rd.) Lynbrook, N. Y. • Tel.: LYnbrook 3-

LIVERS BRONZE

RAILINGS / PLAQUES / LETTERS / GRILLES / CROSSES

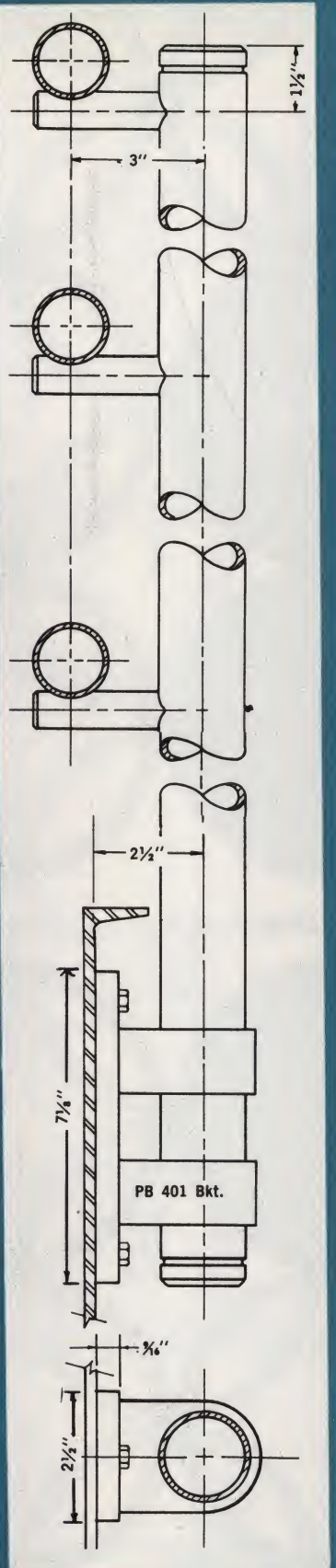
1608
SOUTH MARSH
KANSAS CITY 26,
MISSOURI

6e/Li LIVERS BRONZE COMPANY • CATALOG NUMBER SEVEN

LIVERS THRIFT-RAIL

Completely
Interchangeable
Post—Rails—Screens
Choose any combination
To suit your needs.
See Pages 2-7

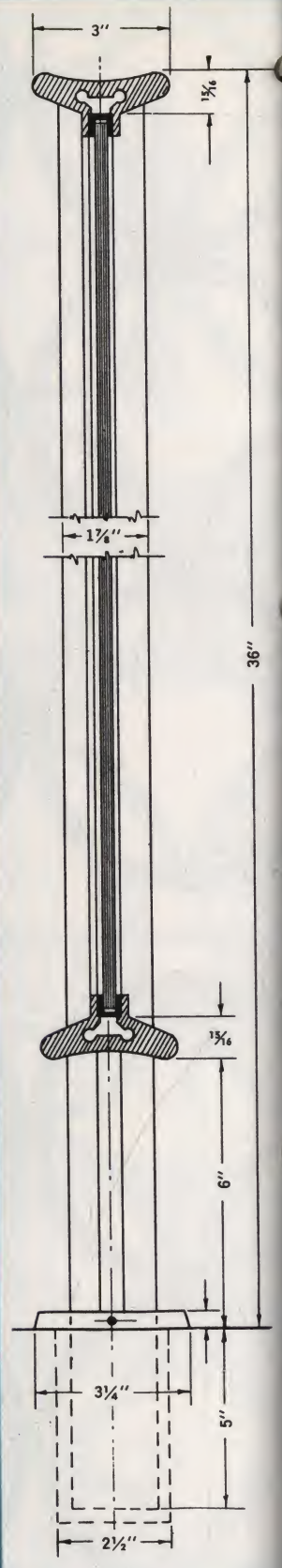




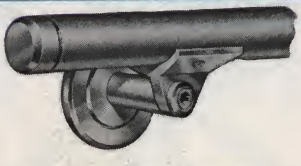
Commercial National Bank, Muskogee, Okla.
Horstmann & Mott, Architects







I. P. S. Alum. pipe rails
RP. 204 Post
PB. 401 Post Bracket
S. 602 Connecters



WB. 1010 Wall Bracket
I. P. S. Alum. pipe rails

R. 102 Handrail
P. 302 Post
F. 702 Floor Flange

Panels can be glass, Plastic, plywood, expanded aluminum, perforated grilles or woven wire

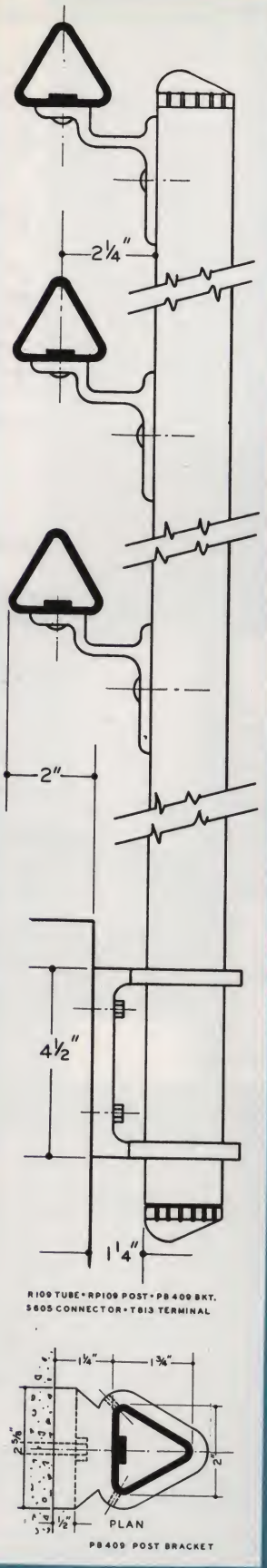


R. 102 hand rail
WB. 1008 Wall Bracket

unicipal Airport Terminal, Kansas City, Mo.
Cooper, Robinson, Carlson & O'Brien, Architects



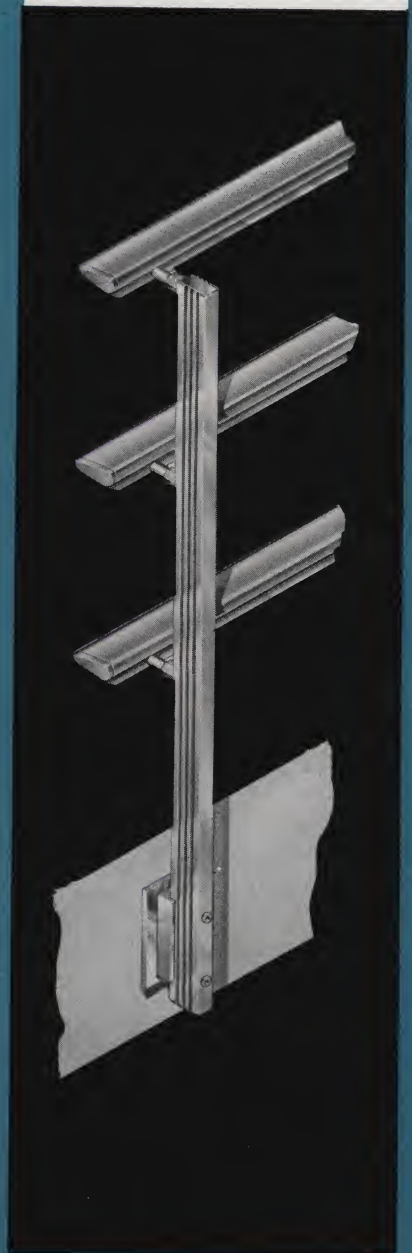




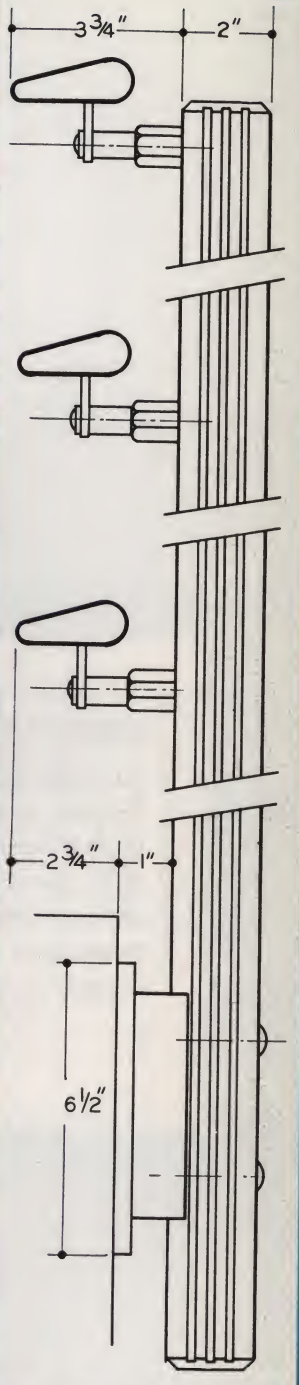
R109 TUBE • RP109 POST • PB 409 BKT.
S605 CONNECTOR • T813 TERMINAL

PB409 POST BRACKET

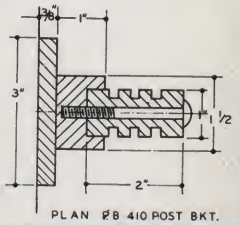
R. 110
R. 109
R. 108
R. 107
R. 104
R. 100
R. 105
R. 102



6e
Li

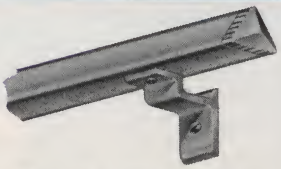


R107 RAIL P306 POST PB410 BKT. S606 CONN.



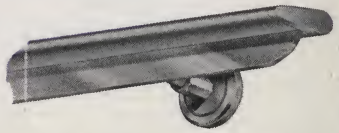
PLAN PB 410 POST BKT.

R. 109 Tube Rail
RP. 109 Tube Post
T. 813 Tube Terminal
PB. 409 Post Bracket
F. 716 Post Flange
S. 605 Connectors

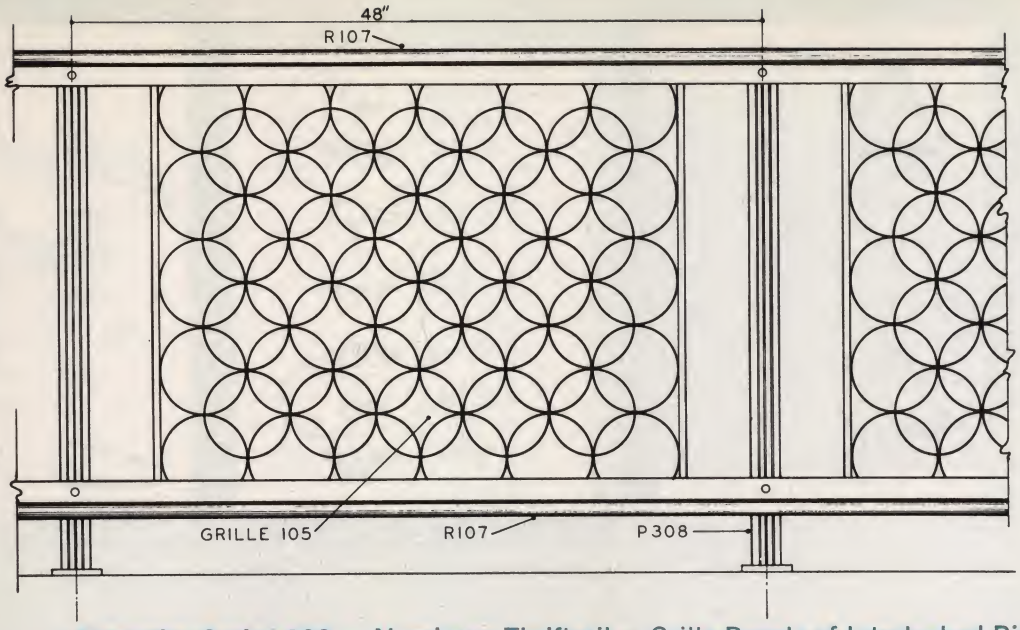


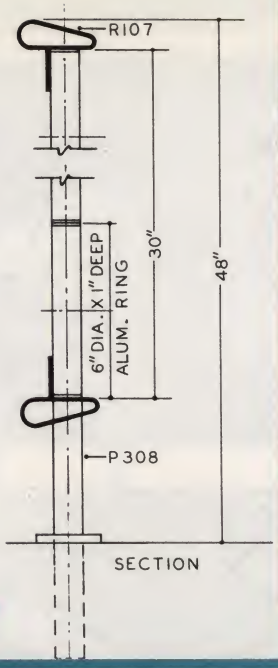
WB. 1007 Wall Bracket
R. 109 Tube Rail

R. 107 Tube Rail
P. 306 Post
PB. 410 Post Bracket
F. 717 Post Flange
T. 814 Tube Terminal
S. 606 Connectors



WB. 1009 Wall Bracket
R. 107 Tube Rail





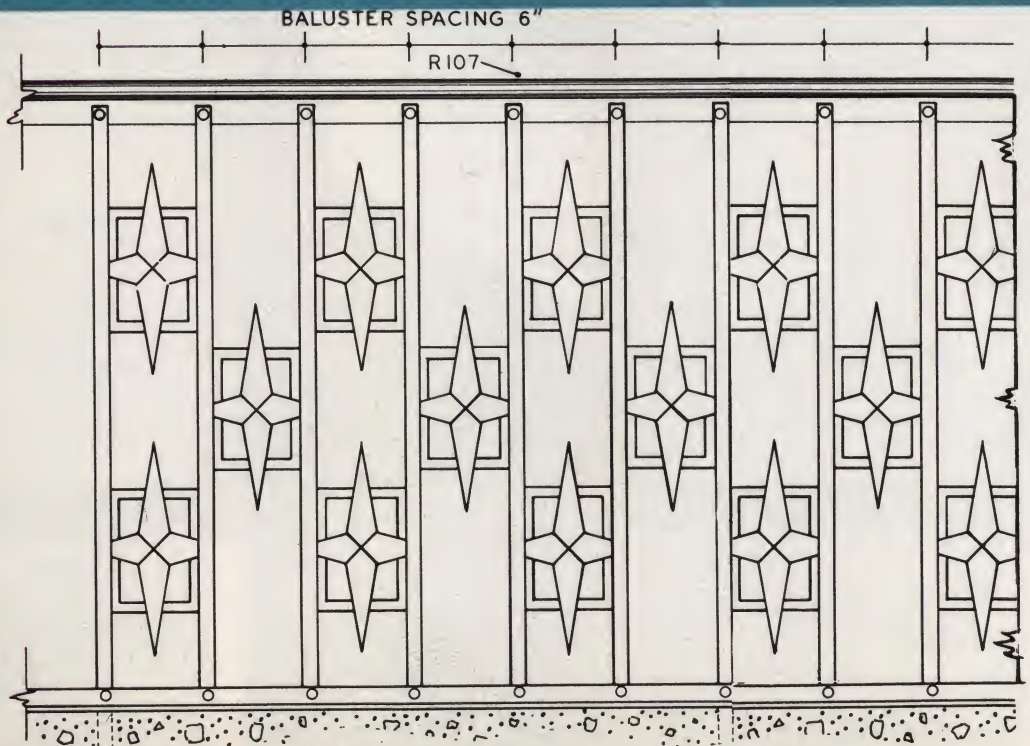
Executive Series 800 • Aluminum Thriftrail • Grille Panels of Interlocked Rings

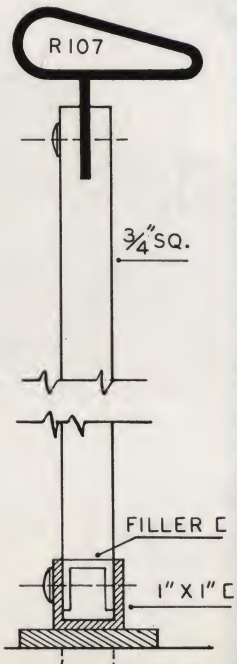
THRIFT-RAILS AS SHOWN ON PAGES 2 THRU 7

are completely fabricated and finished by Livers Bronze. Hundreds of installations have proven their thriftiness and adaptability. All parts—post, rails, screens, completely interchangeable. Now, stronger and even more attractive. Specify Livers Thrift-Rails. Built to keep the bid within the budget.



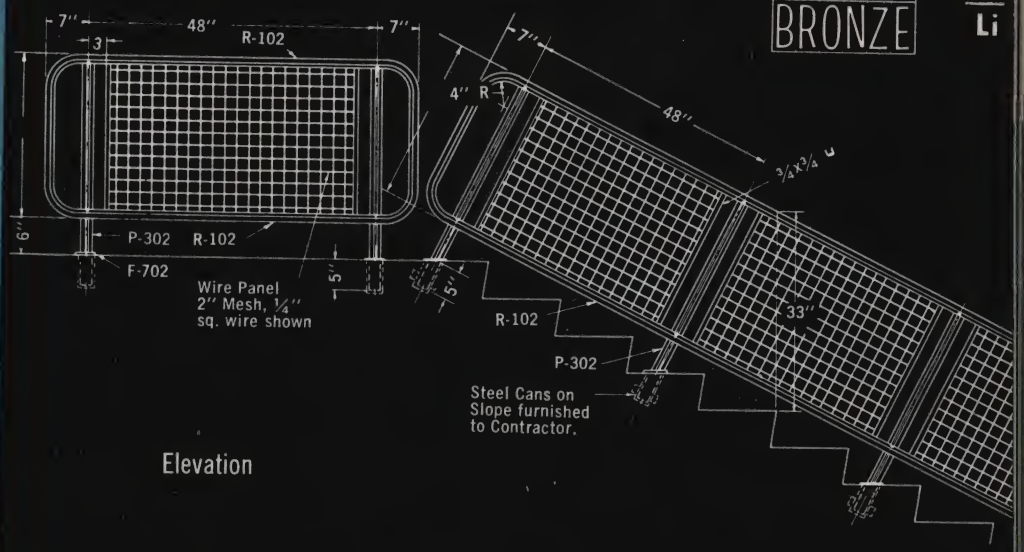
Fred Harvey Restaurant, Kansas City, Mo.
J. F. Lauck & Associates, Architects





Executive Series 900 • Alumium Thriftrail• Balluster Inserts of Cast Aluminum or Bronze

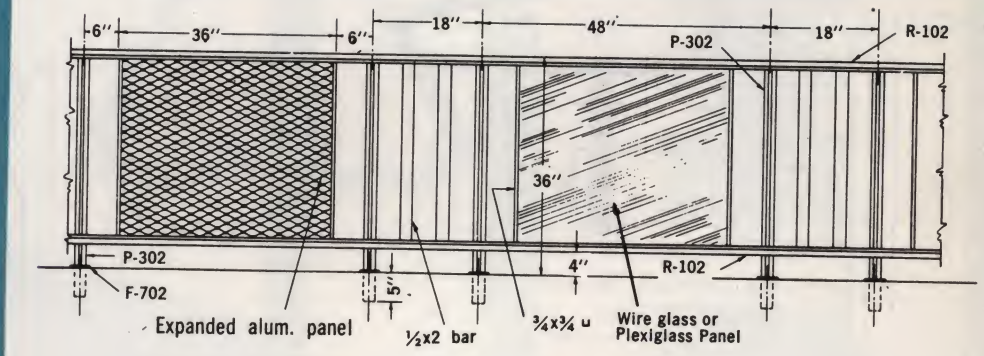
Many materials can be utilized for the panels in these railings. Woven wire, glass, expanded aluminum, plastic, pickets, cast or perforated grilles and veneered plywoods are all appropriate.



Elevation

Municipal Airport Terminal, Kansas City, Mo.
Cooper, Robinson, Carlson & O'Brien, Architects

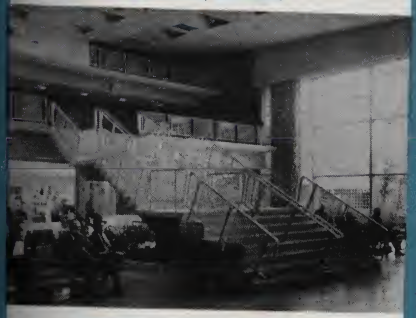




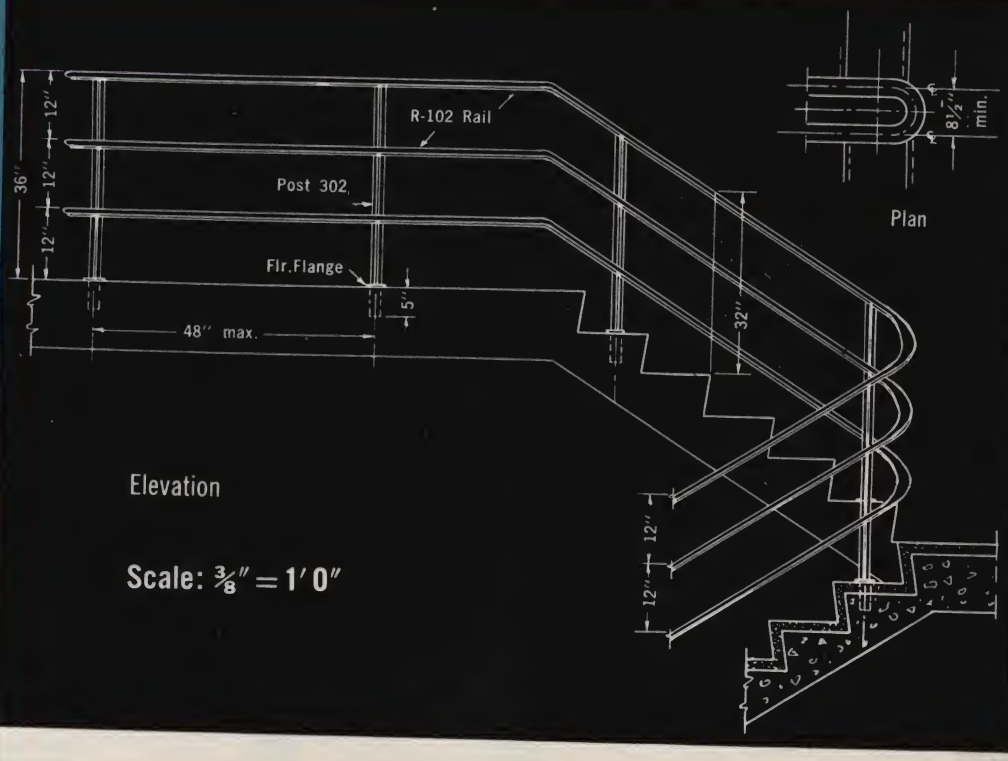
Elevation



Hovland-Swanson Store, Lincoln, Neb.
Herbert B. Beidler, Architect



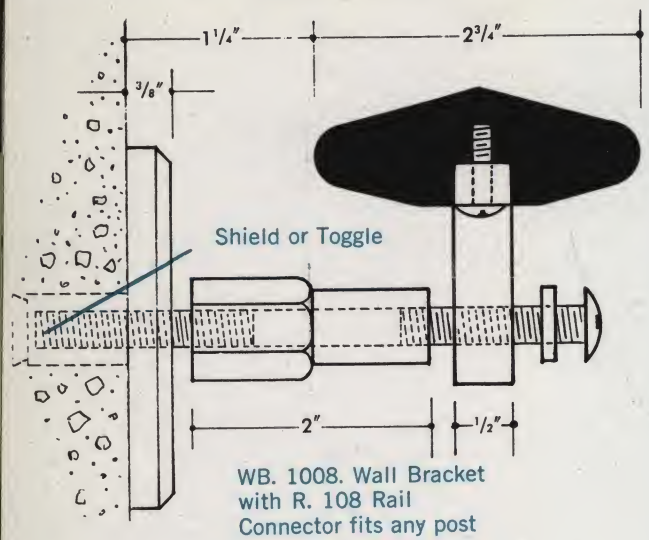
Love Field Terminal, Dallas, Texas
Broad & Nelson, Architects



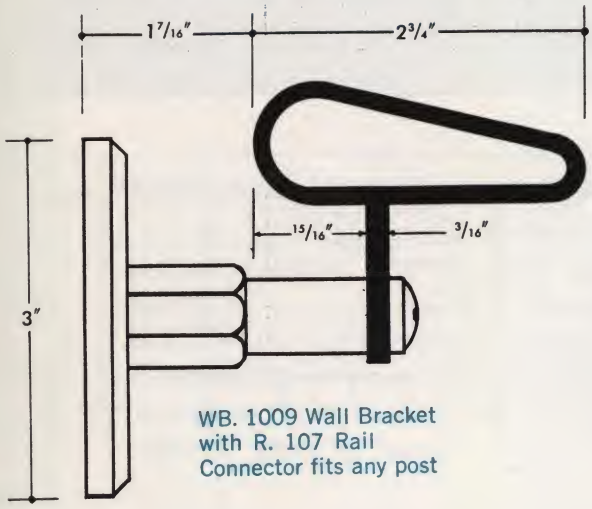
Elevation

Scale: 3/8" = 1'0"

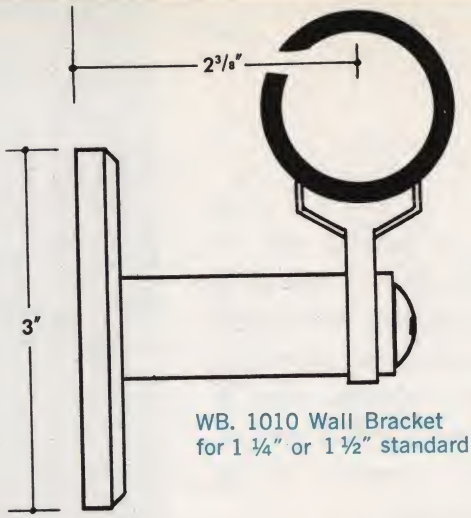
NNECTORS FOR POSTS AND WALL BRACKETS



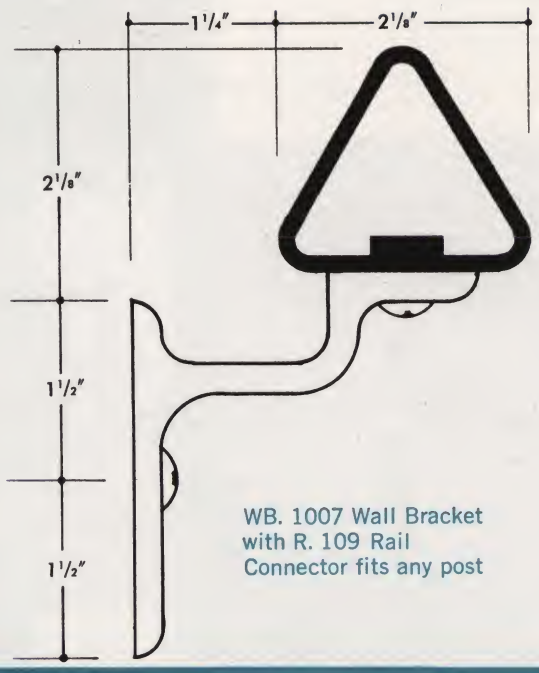
WB. 1008. Wall Bracket
with R. 108 Rail
Connector fits any post



WB. 1009 Wall Bracket
with R. 107 Rail
Connector fits any post



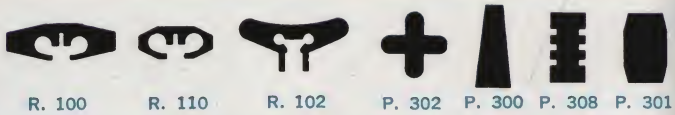
WB. 1010 Wall Bracket
for 1 ¼" or 1 ½" standard pipe



WB. 1007 Wall Bracket
with R. 109 Rail
Connector fits any post



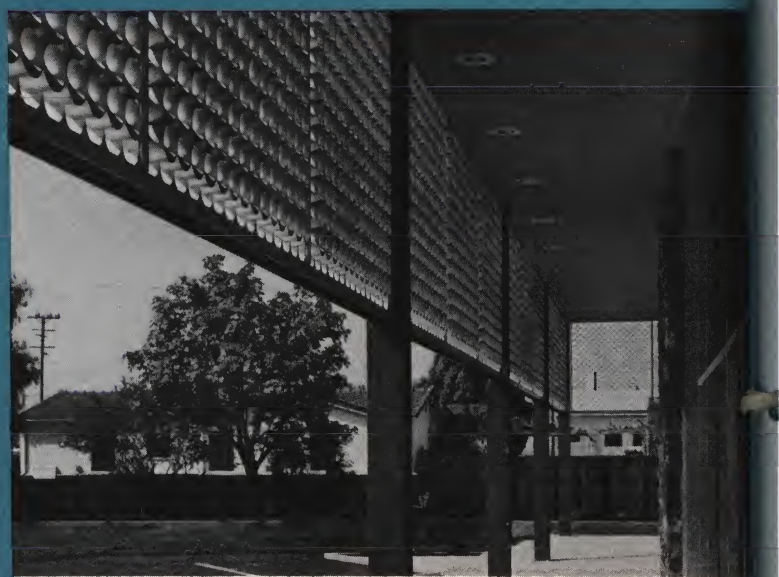
R. 105 R. 109 R. 108 R. 107 R. 104



R. 100 R. 110 R. 102 P. 302 P. 300 P. 308 P. 301

FINISHES—For all interior railings we recommend a fine satin finish with a protective coating of clear lacquer. For exterior railings a fine satin finish with alumilite or anodized protective coating.

MATERIALS—All extrusions are made of 6063 alloy. All castings are made of F. 214 alloy ingot. All exposed fasteners are stainless steel.



First Federal Savings & Loan Bldg., Mountain View, Calif.
Hollis Logue, Architect

HAND RAILS AND POSTS FULL SIZE DETAILS



R 100



R 102



R 110



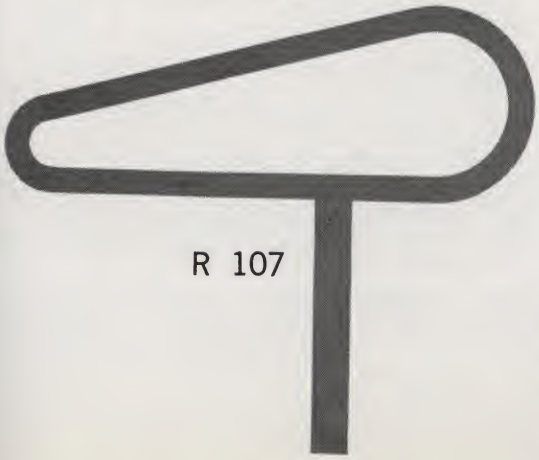
R 109



R 108



R 104



R 107



R 105

POSTS



P 302



P 308



P 301



P 300

AESCULAPIAN STAFF



325-A — 24″ High
325-B — 36″ High
325-C — 96″ High

WINGED CADUCEUS



326-A — 24″ High
326-B — 36″ High
326-C — 48″ High

EAGLES

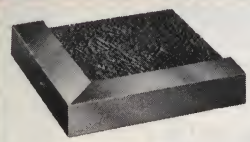


328 35″ wide 24″ high

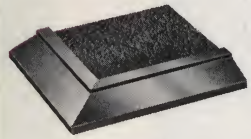
327-A 19″ wide 16″ high
327-B 38″ wide 31″ high

These well modeled emblems can be cast in either bronze or aluminum at moderate cost. Special sizes made on request.

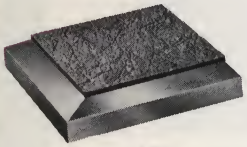
BORDER DESIGNS



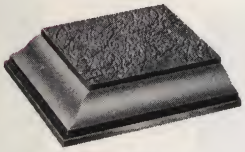
No. 300



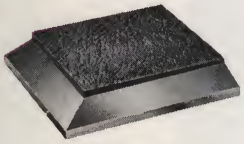
No. 301



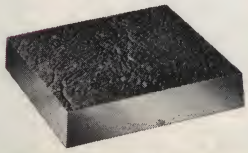
No. 302



No. 303



No. 304



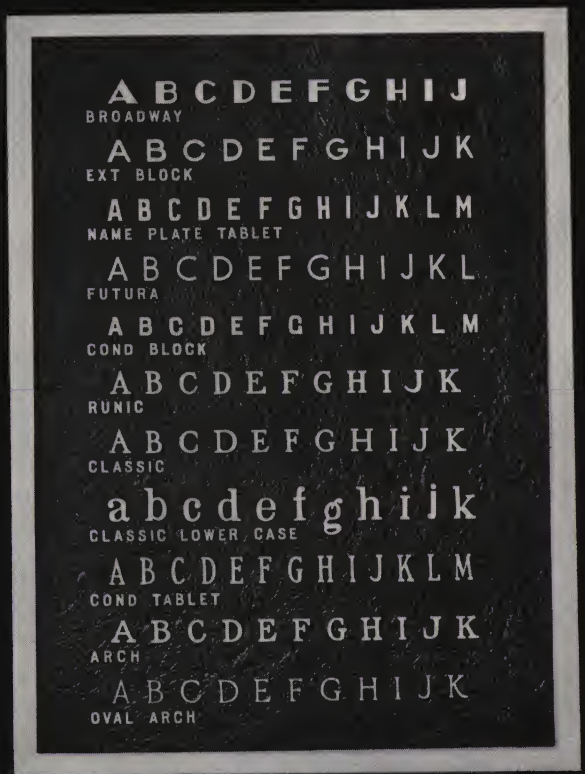
No. 305

PLAQUES

To specify or to order a plaque use the following procedure:

1. Give height and width.
2. Select a border style from those at left.
3. Select a letter style from those shown at right.
4. Send in the inscription with a suggested layout.
5. Specify cast bronze or cast alum.
6. Finishes for bronze, satin or polished with a dark field & 2 coats clear lacquer.
7. Finishes for aluminum satin, etch & lacquer. Satin & alumilite. Field charcoal or natural.

Proof rubbings are forwarded for checking and approval. Delivery 3 weeks.



Letter sizes are as follow:

¼ ⅜ ½ ⅝ ¾
1 1¼ 1½ 1¾ 2

LIVERS CAST ALUMINUM OR BRONZE LETTERS

LIVERS BRONZE

BROADWAY 500

BRO

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z 1 2

LIVERS MODERN 400

BCT

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

FUTURA 100

FUT

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z 1 2

KABEL 300

EHK

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z 1 2

RIBBON 200

ANE

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z 1 2

BISCAYNE 400

AER

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z & 3

CONDENSED RIBBON 700

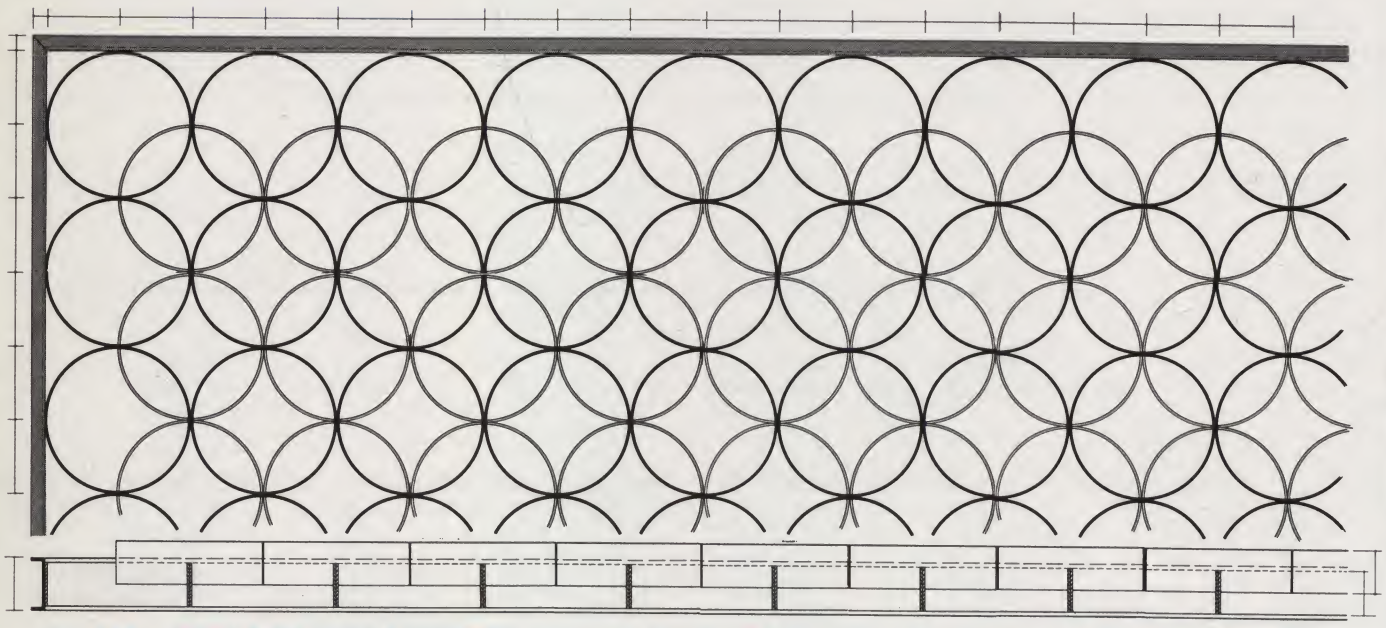
EHK

A B C D E F G H I J K L M N O
P Q R S T U V W X Y Z & 1 2 3

SATIN, ETCHED & LACQUERED Faces are machined and satined. Returns are sandblasted.
SATIN ALUMILITE Faces are machined and satined. Returns are sandblasted.
BAKED ENAMEL Faces are machined. Returns are sandblasted. Color as selected.
SATINED BRONZE Faces are machined. Returns are sandblasted. Color as selected.

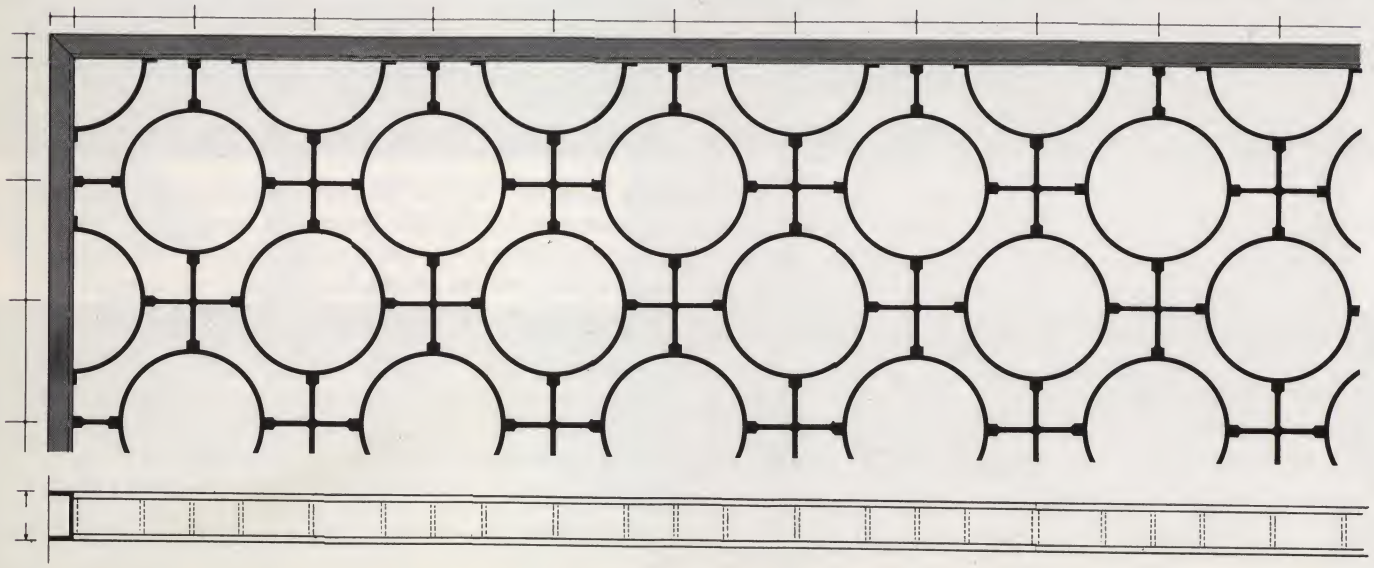


Sizes & Dimensions	Letter Height	2"	3"	4"	5"	6"	8"	10"	12"					
100 Futura	Stroke	3/16		3/16	1 3/16	1 1/4	1 3/4	2 1/16	2 1/2	3	3 1/4	3 1/16		
	Depth	1/2		3/4	7/8	1	1 1/4	1 3/16	1 3/4	1 1/2	2 1/4	2 1/2		
200 Ribbon	Stroke	1/4	5/16	3/8	7/16	1/2	1/2	1/2	3/4	3/8	3/4			
	Depth	3/4	1	1 1/16	1 3/16	2	2	2	2	2 1/2	2 3/4			
300 Kabel	Stroke	1/4	1/2	3/8	3/4	7/8	1 3/16	1 1/2	1 3/16	1 1/16	2	2 1/4	2 3/16	
	Depth	1/4	3/4	3/4	1/2	1/2	3/4	3/4	3/4	3/4	1 3/16	1	1 1/16	
400 Livers Mod.	Stroke			5/16		7/8	1 1/16	1 1/4	1 1/16	2	2 1/4			
	Depth			1		1 1/4	1 1/16	1 1/16	1 3/4	1 1/16	2 1/4			
500 Broadway	Stroke	3/16-3/16				1-2	2 3/16-1 1/4	1 1/4-2 1/16	1 1/2-3 1/2	1 3/4-4	2-4 1/2	2 1/4-5		
	Depth	3/4				1	3/4	7/8	1	1	1	1 1/2		
600 Biscayne	Stroke			1/4		1 1/16	1	1 1/16	2 1/4					
	Depth			1/4		1/4	1/16	1/4	1/4					
700 Cond. Ribbon	Stroke			1/4		3/8	1/2	5/8	3/4					



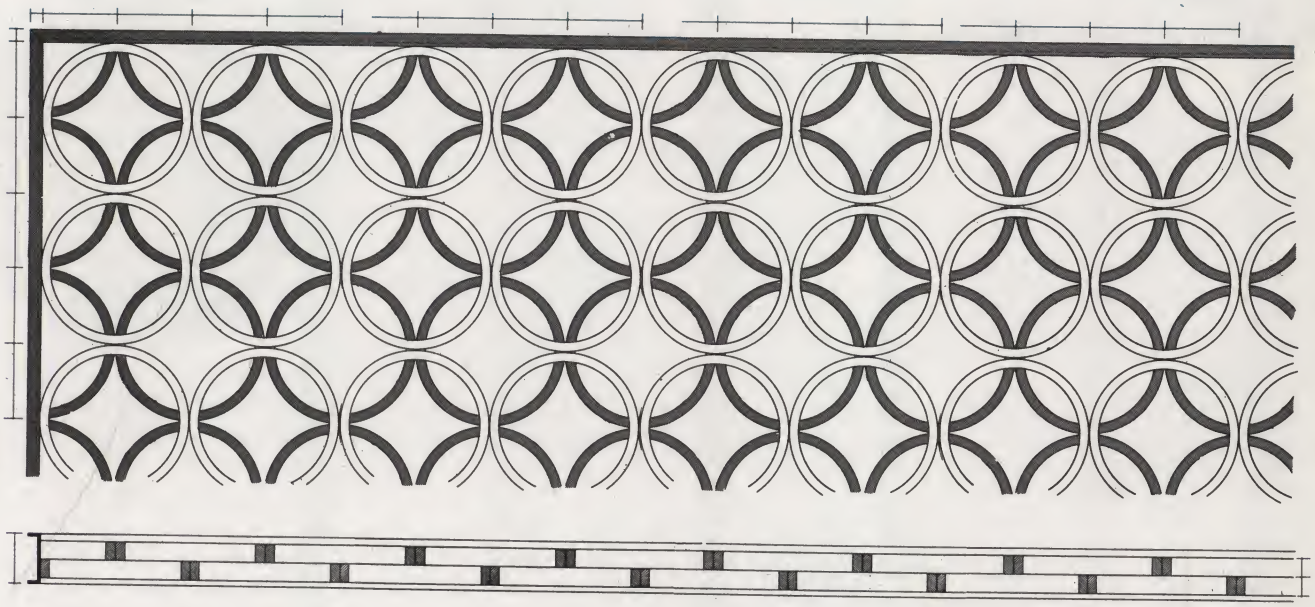
No. 105. GRILLE OR SOLAR SCREEN—Modules 5″, 6″, 7″, 8″, 10″, 12″ diameters. Regular depth 3″. The equivalent of two 2″ deep offset rings. When used as a solar screen specify depth or shielding angle required.

The use of grillage for exterior and interior ornamentation is growing rapidly. Livers Bronze has met this demand by developing attractive and practical grillage at low cost. Our grillage is ingeniously designed to reduce fabrication costs to the lowest possible factors, consistent with good construction. Estimates will be furnished to insure that grillage costs are within the budget.



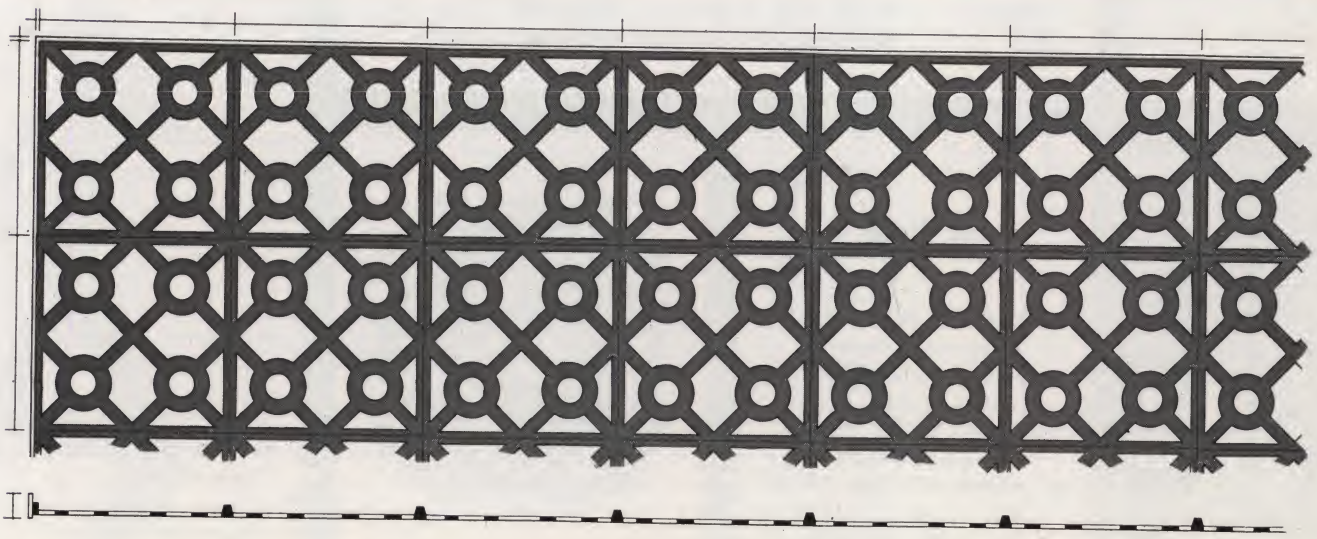
No. 107. GRILLE OR SOLAR SCREEN—Modules 10″ center to center. Regular depth 1½″. When used as a solar screen specify the depth or shielding angle desired.

No. 305



No. 101 GRILLE With offset rings (Rings are cast or fabricated). Modules 6″, 7″, 8″, 10″ and 12″ diameters. Regular depth 1½″. The equivalent of two rings ¾″ deep.

SPECIFICATIONS—Aluminum extrusions are 6063-T5 alloy. Aluminum castings are F-214 alloy. Bronze casting 85-5-5-5 alloy. All fasteners are aluminum or stainless steel. Aluminum members are satin finished on faces, returns are mill conditioned, etched and lacquered. Bronze members are satined on faces with returns sandblasted and lacquered. Baked enamel finish can be supplied on aluminum. Anodized finishes available in natural or colored aluminum.



No. 109 GRILLE Cast aluminum or bronze. Modules 12″ center to center of grilles. Regular Depth ¼″ through cast grilles.



No. 100



No. 200

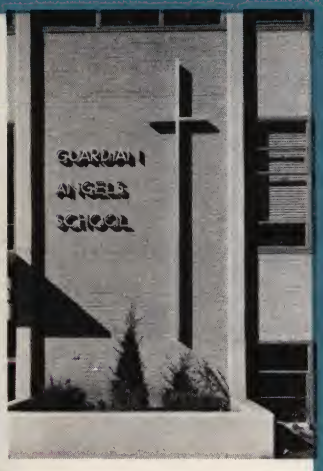


No. 300

STANDARD SIZES FOR CROSSES

Height	3′-0	4′-0	10′-0	5′-0	6′-0	8′-0	12′-0
Width	1′-6	2′-0	5′-0	2′-6	3′-0	4′-0	6′-0
Sq. Tubing	1½″	1½″	3″	1¾″	2″	2½″	4″
Rect. Tubing	1x2	1x2	1¾x5	1½x2½	1¾x3	1¾x4	1¾x5

Finish	Satin & Lacquered • Sandblast returns
Construction	Welded with ends closed
Anchoring	Supplied as required for job conditions
Material	Aluminum or bronze • Gold leafed if desired
	Special crosses fabricated to architects details



ST. MARK

Emblems of the four evangelists, Mathew, Mark, Luke and John. Casting is 32″ in diameter and is made in either bronze or aluminum. The emblem shown is that of St. Mark, the other three are available.



LIVERS BRONZE AGENTS

BISSELL BUILDERS SUPPLY CO.
Oklahoma City, Okla.

BISSELL BUILDERS SUPPLY CO.
Tulsa, Okla.

BROWN AND RAISCH CO.
Detroit, Michigan

JOHN F. BRETT AND CO.
Little Rock, Ark.

R. J. DEWEES AND SON, INC.
Dallas, Texas

R. J. DEWEES AND SON, INC.
Lubbock, Texas

R. J. DEWEES AND SON, INC.
San Antonio, Texas

R. J. DEWEES AND SON, INC.
Houston, Texas

CHARLES EAST AND CO.
St. Louis, Mo.

MIDWEST BUILDERS SUPPLY INC.
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HAROLD LIPPER CO.
Shreveport, La.

PAVICH-KOHLER CO.
Lincoln, Nebr.

SCHULTZ-DEWEY AND CO.
Oakland, Calif.

SUPERSINE CO.
Detroit, Michigan

TOPEKA BUILDERS SUPPLY INC.
Topeka, Kansas

CLARK BUILDING MATERIAL CO.
Jackson, Miss.

For further details on all Livers thrift-fabrications, write today to the Livers agent in your region or directly to the plant.

Livers Bronze
P. O. Box 6206
Kansas City 26, Mo.

6e/Mc

McKinley Designs

DIVISION OF McKINLEY IRON WORKS
FORT WORTH, TEXAS



brochure S-3

EXCLUSIVE BROCHURE FOR ARCHITECTS and MEMBERS OF AMERICAN INSTITUTE OF DECORATORS.

controlle designs & sculpture in bronze, brass, iron, steel, aluminum and pewter.

a.i.a. file • 15-C



MORIBANA

Lineal patterns emphasized over centers of interest. Style is standing, slender in design. Natural growth from the parent stalk is stressed.

CONTROL PROGRAM
OF
McKINLEY DESIGNS

McKinley Designs and Sculptures are offered only to registered architects and A.I.D. decorators.

We control the use of our design elements to prevent the depreciation of the originality and individuality of original design assemblies. Our designs and sculptures are patented, pending, or copyrighted.

Details of design elements, installation, illustrations and estimating cost procedures are available to registered architects and A.I.D. decorators when requested on their letterhead.

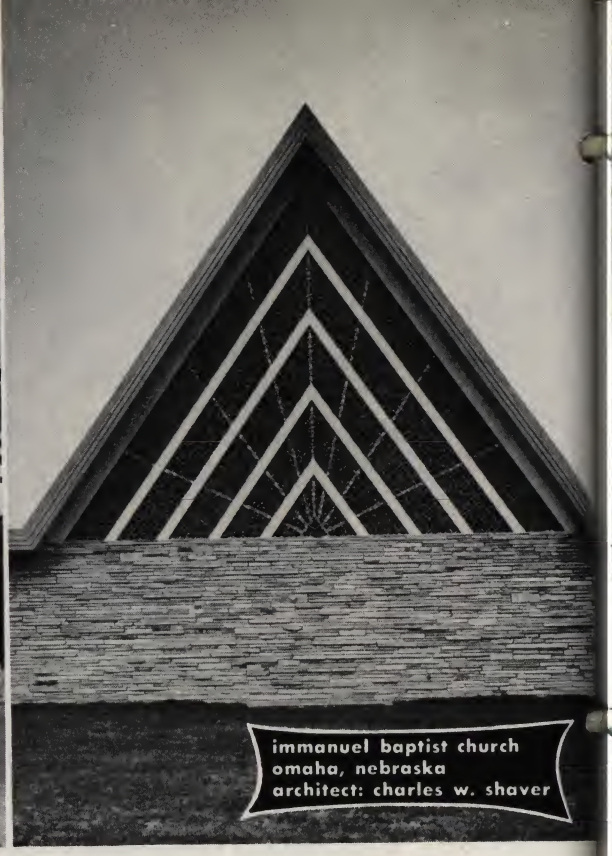
We appreciate the architect requesting the reservation, in the planning stage, of any design that he anticipates using. This makes it possible for us to hold the design for his exclusive use in the locality.

Our artists are endeavoring to match our designs to the fast changing directions in architecture. Our art department and designers are available for consultation. With sufficient notice, sketches, pictures and suggestions can be submitted.

We wish to express our appreciation to the architects and decorators for making our control program a success. Through your cooperation, we have maintained a nationwide control on all of our custom designs. As a result, we have been able to give you more designs and sculptures at the present, and a promise of more dramatic styles during the forthcoming years.



alden b. macneil residence
los angeles, california
architect: alden b. macneil



immanuel baptist church
omaha, nebraska
architect: charles w. shaver

de STIJL

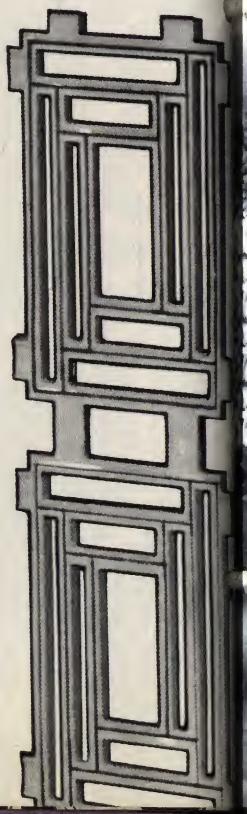
A non-objective composition of deliberate design, which in a new way displays the influence of Piet Mondrian. His motif of the right angle and straight line that he so uncompromisingly used, has had a tremendous effect on the paintings, architecture, and even the design of our magazine covers of today. The deSTIJL motif' makes its premier in McKinley iron that is stylized and undisputedly chic.



commerce acceptance company
muskogee, oklahoma
architects: zaroor & davis

FORMAL

FORMAL is a design easy to live with. It is for the critic who feels that good principles transcend the times. The FORMAL motif' in design reflects a little of yesterday, some of tomorrow, but it must be contemporary for use today. Iron work in FORMAL will lend poise and beauty to any home or building.



HOURGLASS

Simplicity of geometric form, combination of contrasting materials, color and full freedom of composition make this a unique and provocative design element. To be used for individuality and distinction in country clubs, offices and homes.

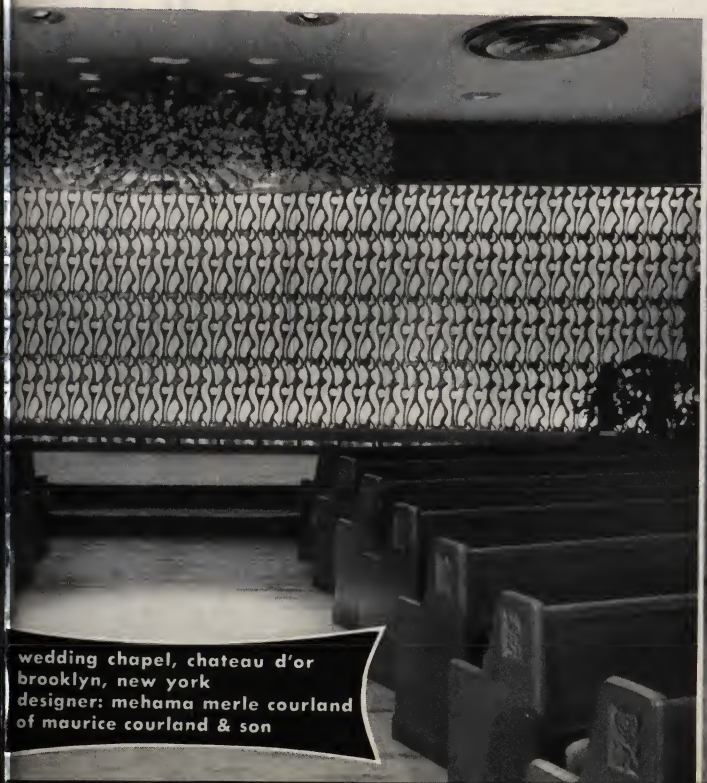
Suggestions: HOURGLASS of black lacquer on brass or black rods. HOURGLASS of different color on black rods. Polished brass or aluminum HOURGLASS on black rods.



the upjohn company office building
kansas city, missouri
architect: the austin company

SOPHISTICATION

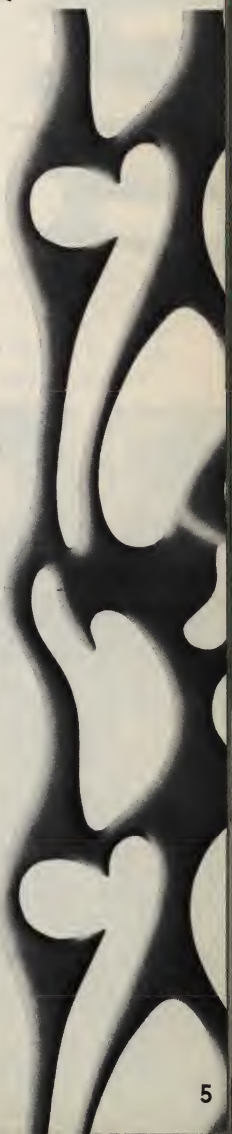
An original by the American designer, Leonard M. Logan III. An abstract composition that reflects his many academic awards. SOHPISTICATION is formed through positive and negative space relationship. A rhythmic arrangement of forms and curves . . . the style pleasing SOPHISTICATION will bring life and personality to our modern functional architecture. Arrangements used as elements and grills in colors. Can be furnished in polished and high gloss finishes.

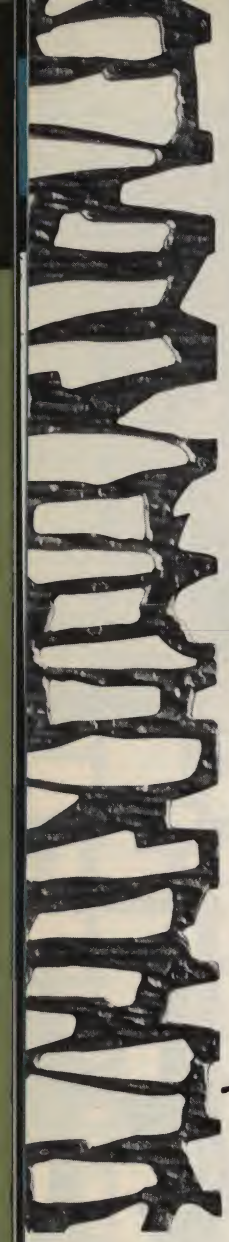


wedding chapel, chateau d'or
brooklyn, new york
designer: mehama merle courland
of maurice courland & son



j. e. brown residence
fort worth, texas
architect: arthur vinson







american security bank
ville platte, lousiana
architect: clayton j. d'avy, jr.

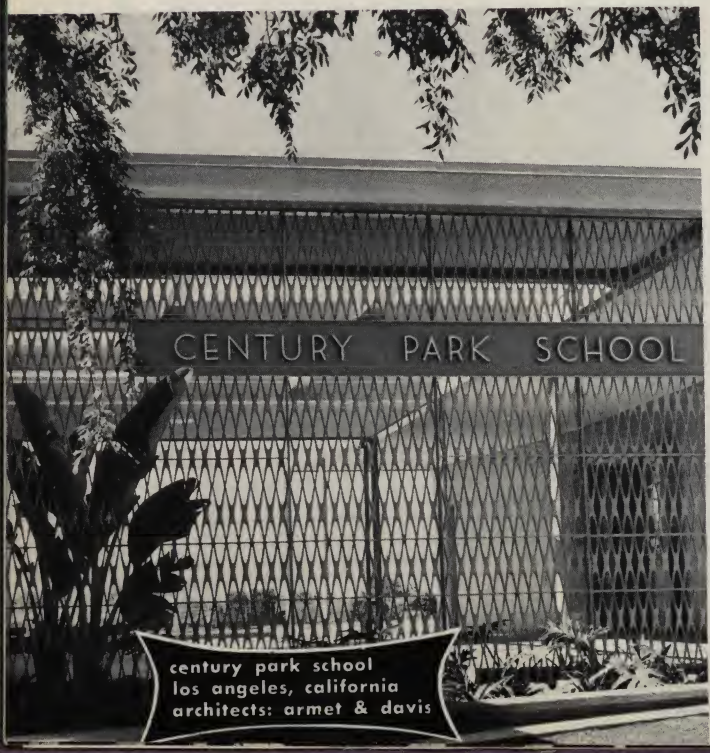


schulers
grand rapids, michigan
architects: h. l. colton & associates

CASUAL

A design created to show the charming effect of old hand-hammered iron. The seldom duplicated form arrangements, together with the irregular surface texture has an unstudied effect. It is not a design for every type of architecture, but lends its appeal to buildings of modern architecture and the informal home.

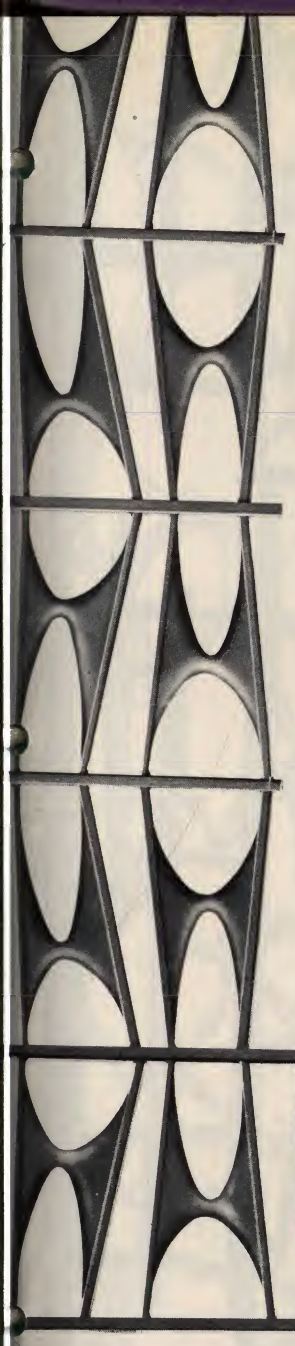




century park school
los angeles, california
architects: armet & davis

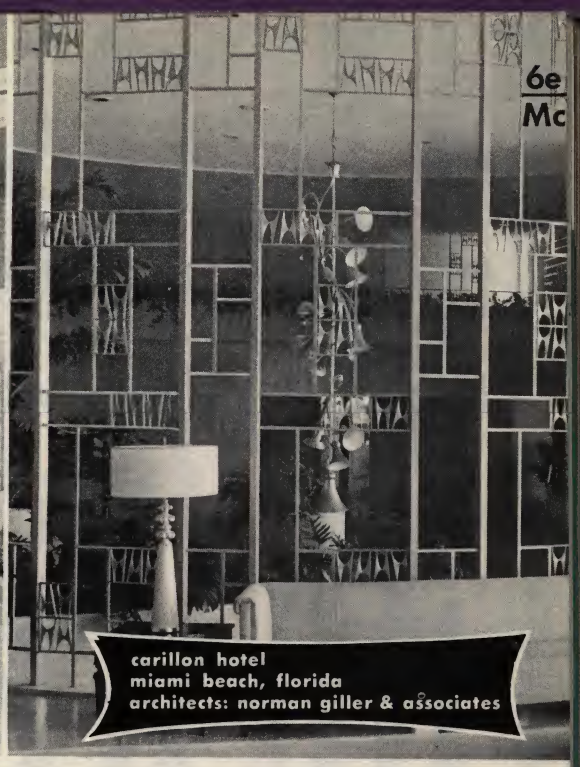
SYMMETRY

The sculptured form of this creation gives excellent texture for screens and grills. Its abstract nature fits well in many settings. A pleasing play of light and dark patterns, gives a mellow contrast to enhance the architecture. Used with an absorbent blanket . . . a very efficient acoustical grille.





andrews school administration building
andrews, texas
architects: brasher & associates



carillon hotel
miami beach, florida
architects: norman giller & associates

BUTTERFLY

BUTTERFLY, by Herbert E. Reid, is a smooth flow of sculptured, three dimensional forms which is complimented by the directional and contrasting play of the hyperbolic curves. The result is a stimulating design, highly adaptable to many applications. With its free flowing space, it is especially good as screens for controlling traffic flow, and space divisions of open planning.

A new school of thought and a new mode of designing are forming in the wake of the works of Herbert E. Reid.

If you see an attractive, contemporary residence, office or commerical building with a casual effect and an easy to live with atmosphere, you can expect a little treatment from the Reid's school. The effect in Reid's works is secured by stealing, borrowing, or maybe just the taking of object lines or curves from the things our eyes are subconsciously accustomed to, and composing them in sculptured forms, elements and background treatment



union national bank
lowell, massachusetts
architect: arthur englund

SAMBA

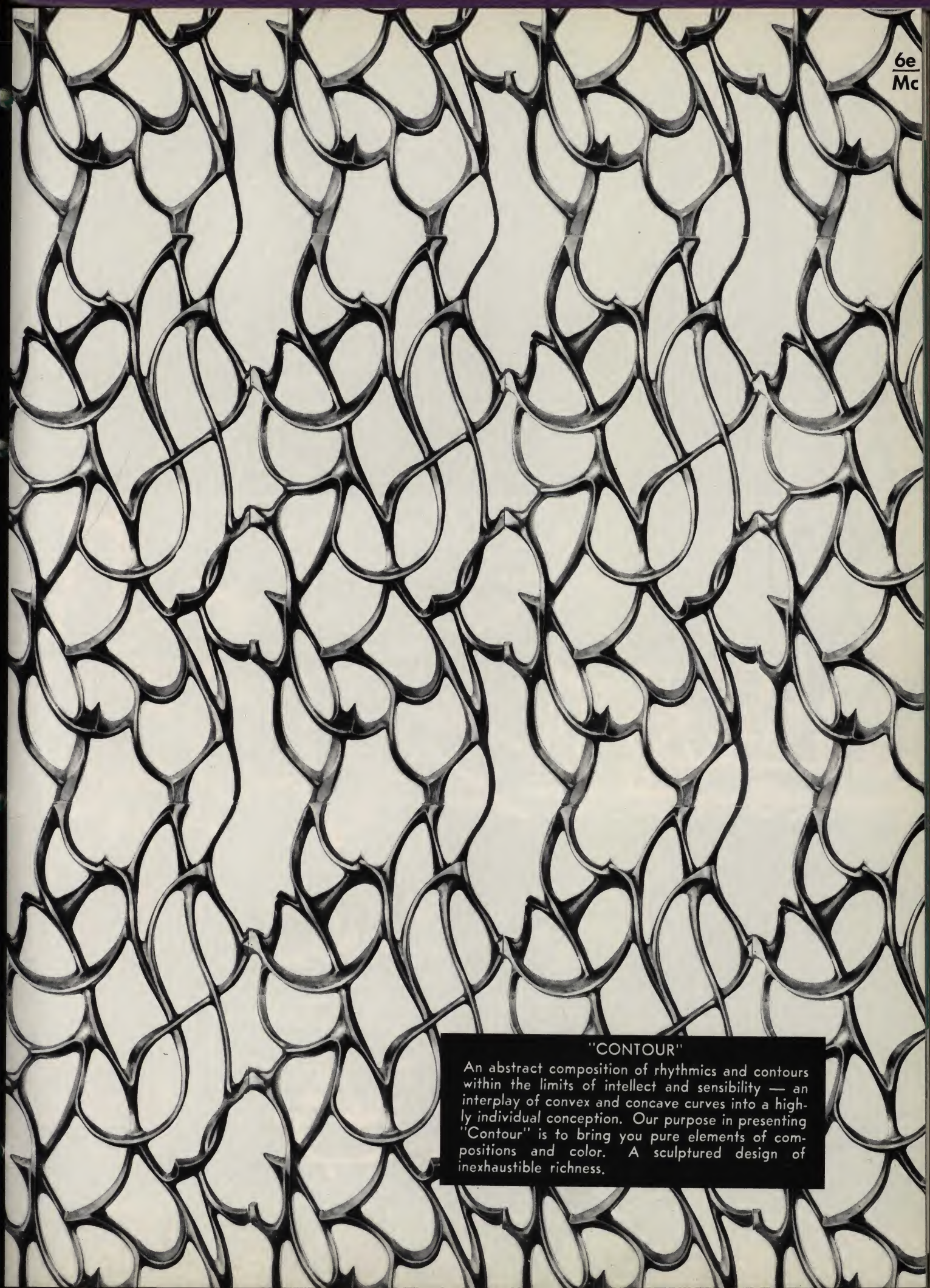
SAMBA, by Wendell Brown, is an interpretation from the classic form of "Hogarth's Line of Beauty." It is designed to be viewed at a distance.





"PLANES"

A clean and precise structure of lines and sharp planes in a schematic form of asymmetrical balance. An expression of contempt for realty and proclaiming bankruptcy of complacency. In "Planes" the line, the angle and the slope of the planes announce a new direction in metallic designs. A composition two years in forming, we predict an exciting future for "Planes".



"CONTOUR"

An abstract composition of rhythmics and contours within the limits of intellect and sensibility — an interplay of convex and concave curves into a highly individual conception. Our purpose in presenting "Contour" is to bring you pure elements of compositions and color. A sculptured design of inexhaustible richness.







singapore hotel
miami beach, florida
architects: normal giller & associates

Japanese Reed

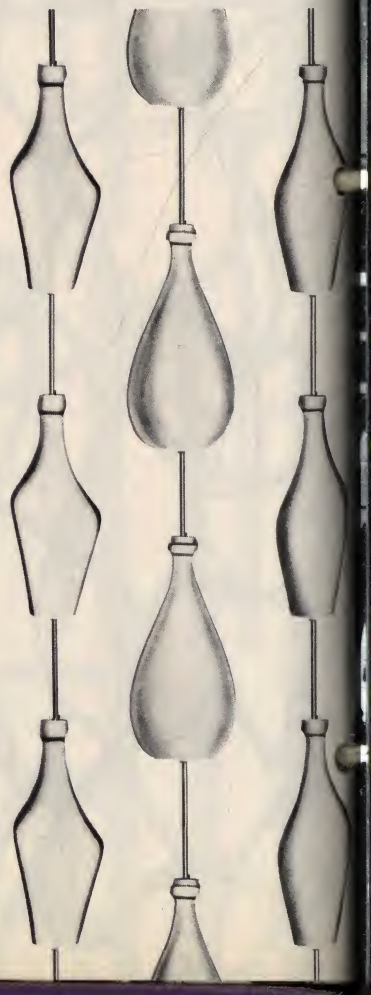
The flowing lines of this delightful pattern creates intriguing effects in grilles, wall treatments and dividers. Another example of the new trend of incorporating lines of nature into architecture.



blue angel lounge
las vegas, nevada
architect: ira c. marshak

Botelias

Stylized Italian bottles for Mediterranean influence. Unusual but carry warmth and feeling when used strategically in screens in contemporary architecture. Designed by a noted sculptress, Evaline Sellers. Like "Hourglass," composition of metals and colors should be carefully styled. For "botelia" the situation is paramount.



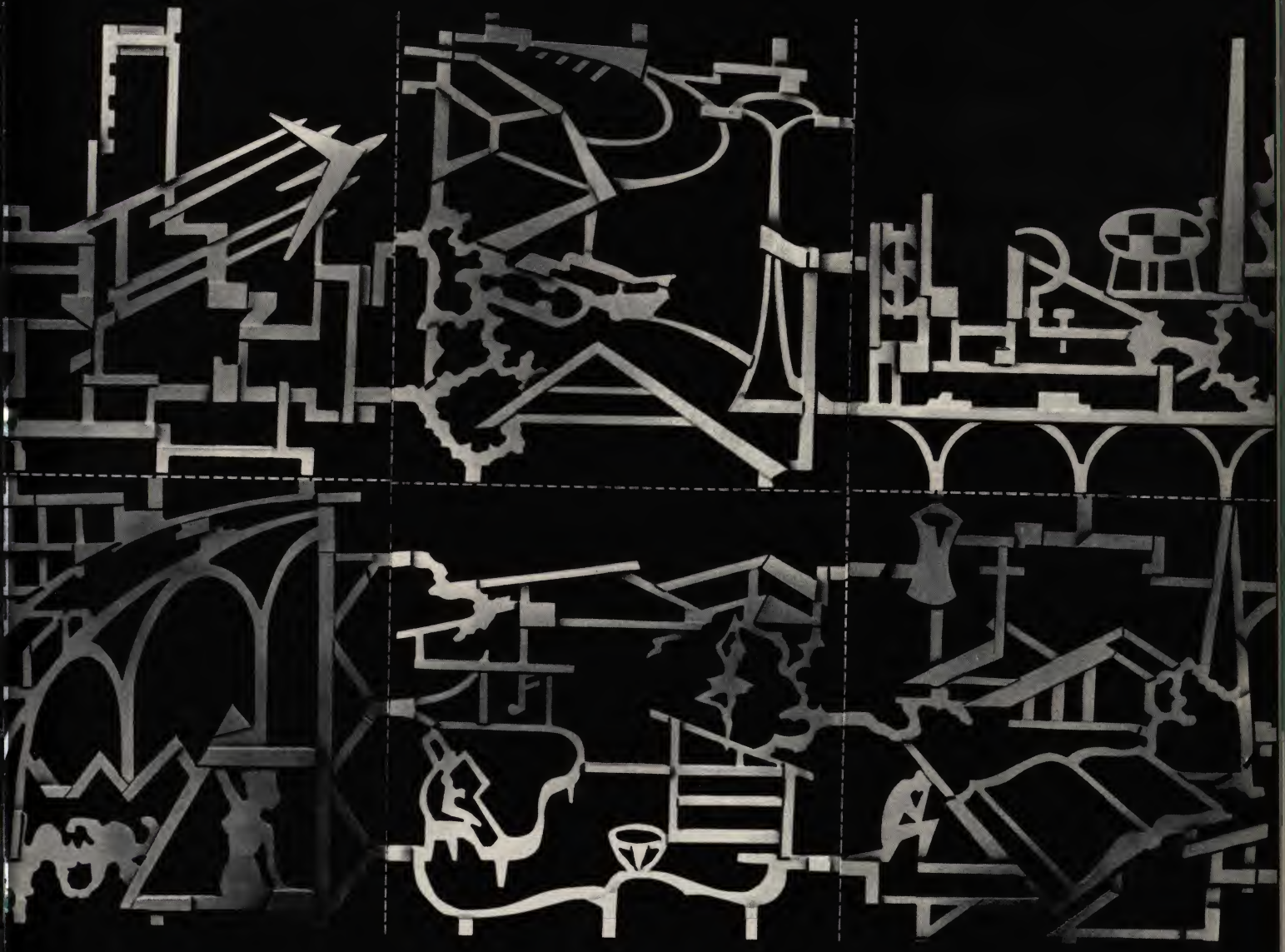
TODAY

DESIGNS IN MURALS

Evolution from the figurative and plain representation toward the abstract has made possible our impressionistic style.

Through the supremacy of pure sensibility in art, the feelings of structures are presented to the inspiring and unrelenting eye. By suprematism, objects, like sound from reflected surfaces, create definite waves of thought that silently splash in meaning with dramatic effect.

The author presents for the architect's use, in structures where people assemble, his symbolisms of abstract compositions of our modes, rush, environment and fluid, human emotions in verse of visual graphics.



URBANISM

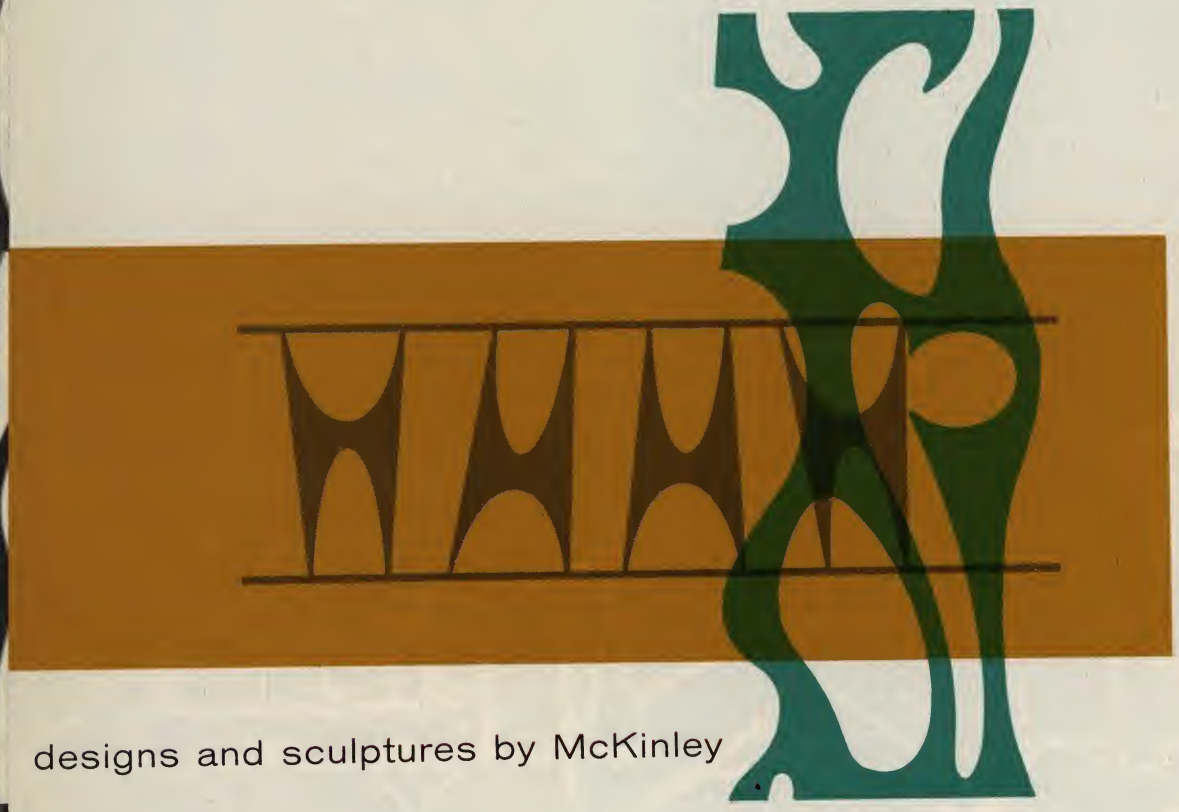
CITY SEAMS

SUBURBIA

AMUSEMENT

TENSION

FAITH



designs and sculptures by McKinley

6e
Mi

Ariston Hand Rail Brackets and Railings



Adjustable

Concealed anchorage

A. I. A. File No. 14-D-2

ARISTON
Metal Products
Since 1912

Michel & Pfeffer Iron Works, Inc.

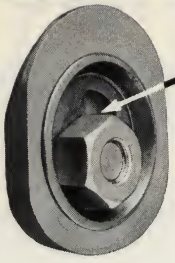
South San Francisco, California

Ariston Hand Rail Brackets

Adjustable

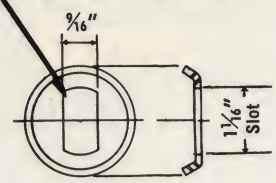
Concealed anchorage

Fast, economical installation Adjustable in any direction on wall surface

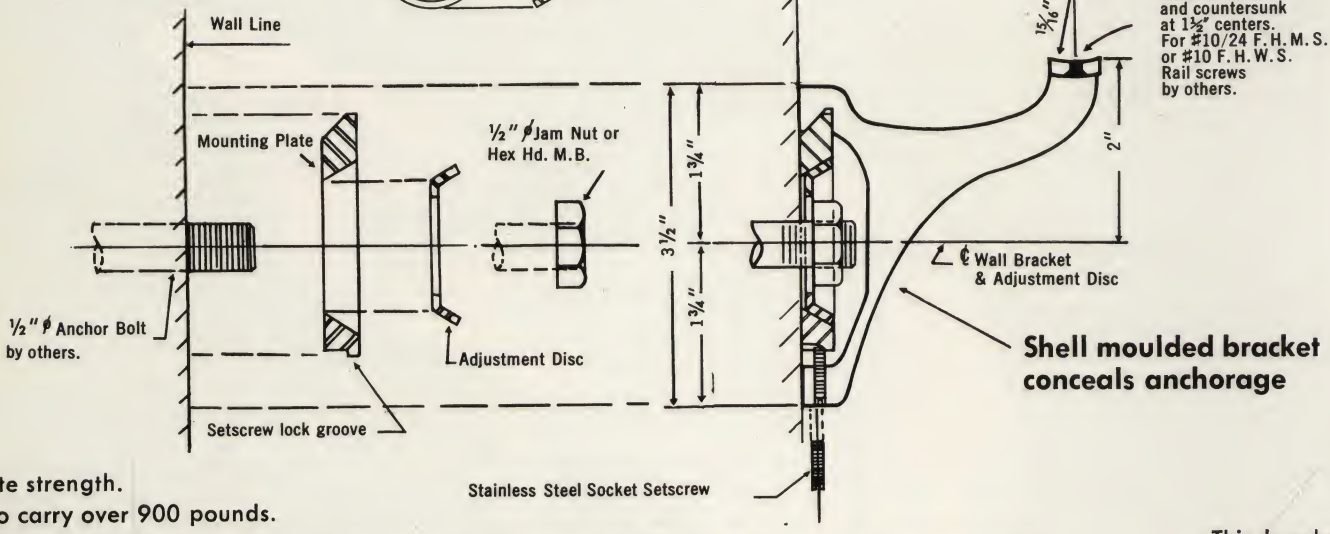


Mounting plate and adjustment disc installation

Slot hole permits adjustment by rotating disc



Adjustable disc permits perfect alignment of brackets and rails

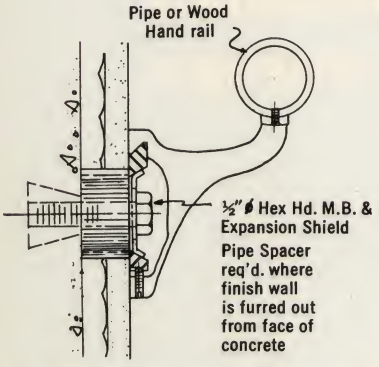


Adequate strength.
Tested to carry over 900 pounds.
Anchor bolts and rail screws to be furnished by others.

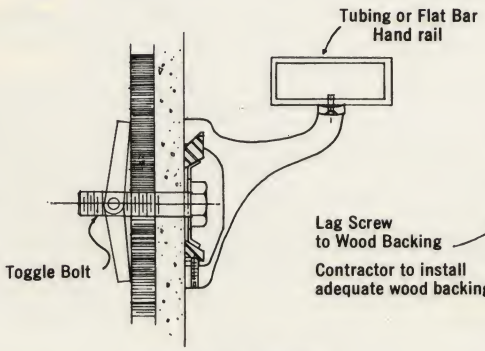
Exploded view of Ariston Bracket assembly on Concrete Wall using pre-set anchor bolts

This bracket fully protected by U.S. patents

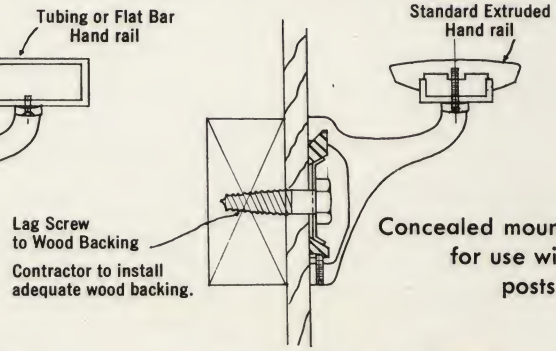
Easily installed on any wall surface Takes any metal or wood hand rail



Concrete or Masonry



Plaster Wall



Wood Construction

Concealed mounting brackets for use with 1 ¼" wide posts: see page 4.

Brackets are reversible for either hand.

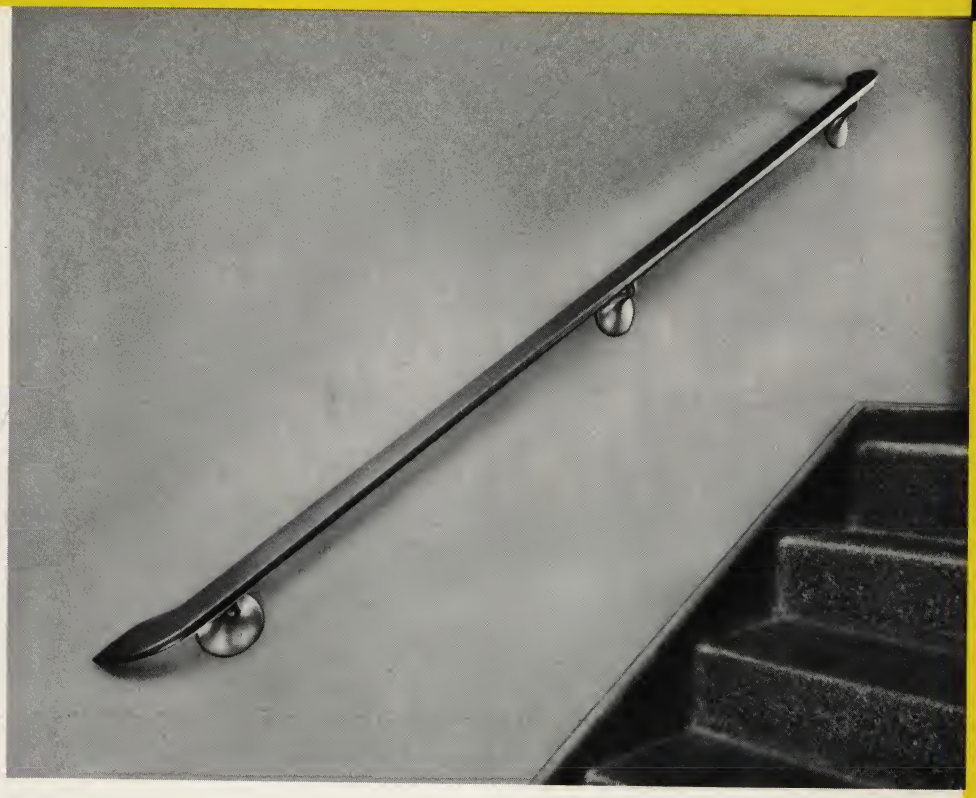
Typical Installation Details

Perfect alignment of brackets and rails every time—instantly!

Ariston Hand Rail Brackets

Adjustable

Concealed anchorage



Florence Moore Hall
Stanford University
Palo Alto
California
Milton T. Pflueger, A. I. A.
Architect
Williams & Burrows, Inc.
Contractor

Adjustable in any direction on surface of the wall. Patented design permits use of pre-set anchor bolts.

Concealed anchorage — Clean modern, shell moulded lines. No unsightly exposed nuts, bolts or screws.

Speeds painting time. Mounting plate may be installed on unfinished wall. Brackets and rails installed AFTER finished painting, eliminates cleaning problem.

Locking feature cinches bracket flange to wall—even if anchor bolt is loose.

Economical. Competitively priced. Ariston adjustable brackets are quickly installed by unskilled labor.

Special brackets with our adjustable and concealed mounting features can be furnished providing minimum flange dimensions of 3½" by ⅝" are maintained.

Available Finishes

US27 — Aluminum Satin Finished and Lacquered
US28 — Aluminum Satin Finished and Alumilited * or Anodized
US9 — Bronze Satin Finished
US26D — Chrome Plated Bronze
Special finishes obtainable to order.

*Aluminum brackets may be alumilited to match alumilited extrusions.

Immediate delivery of standard designs

Specifications

Furnish Ariston Aluminum or Bronze Hand rail Bracket No. 500 with U.S. No. . . . . finish (specify preference) and concealed anchorage to wall. No exposed bolts, nuts or screws will be permitted.

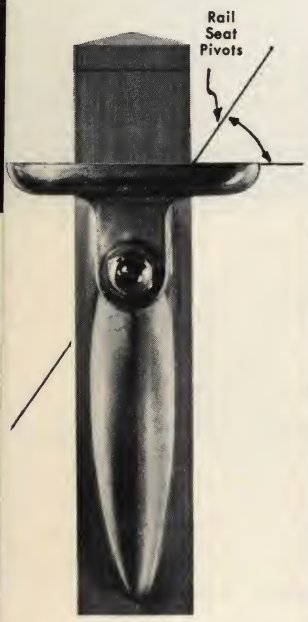
Shell-moulded brackets to be cast from Aluminum Alloy F214 or Bronze and shall be furnished with concealed wall fittings consisting of an anchor bolt, wall mounting plate and steel adjustment disc permitting at least 1" wall adjustment on face of wall. Assembly shall be locked with a stainless steel socket type set screw.

Anchor bolts and rail screws to be supplied by rail fabricator.

We reserve the right to modify material and design without notice in the interest of improving product.

Products shown in this catalogue fully protected by U.S. patents.

Ariston Thin-Line Bracket





For use with 1¼" and wider posts

Concealed mounting Type B-520

Available in Aluminum from stock; Bronze on special order

Extruded Aluminum Brackets



Type E-600 for round rail sections

Available in aluminum only



Type E-600F for flat rail sections

These Extruded Bracket Sections may be purchased by metal fabricators in 10′ stock lengths.

A few of the many Ariston railing sections



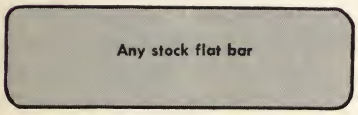
503



509



509A



511

All illustrated sections available in aluminum. Others available in bronze, steel and stainless steel.



Illustrations ¾ actual size



Ariston products may be obtained through your local architectural metal fabricator

ARISTON
Metal Products
Since 1912

Michel & Pfeffer Iron Works, Inc.

Architectural Metals Division

212 Shaw Road, South San Francisco, California PLaza 5-8983

Entire contents copyrighted, 1959
Michel & Pfeffer Iron Works, Inc.

Fabricators of: Architectural Metal Work • Steel Buildings • Metal Windows and Doors Since 1912

6e
New



ECONO-RAIL®

Distinctive

ALUMINUM EXTRUDED

QUALITY RAILING

designed especially for
- OFFICE BUILDINGS
- INSTITUTIONS
- HOSPITALS
- INDUSTRY
- SCHOOLS

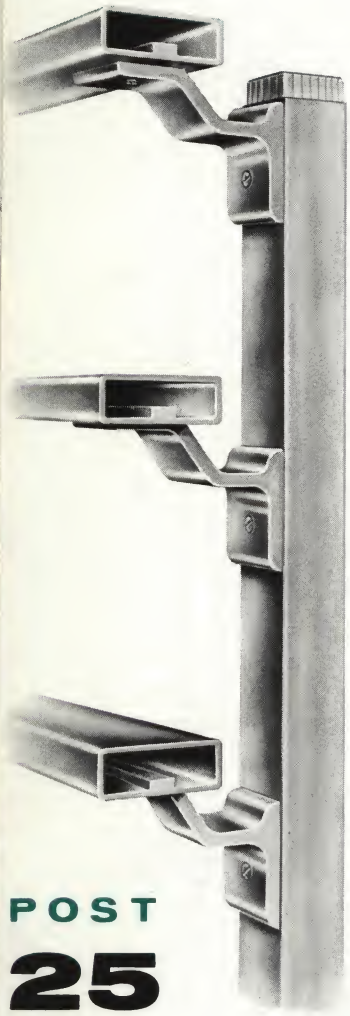
NEWMAN brothers, inc.

EST. 1882

CINCINNATI 3, OHIO

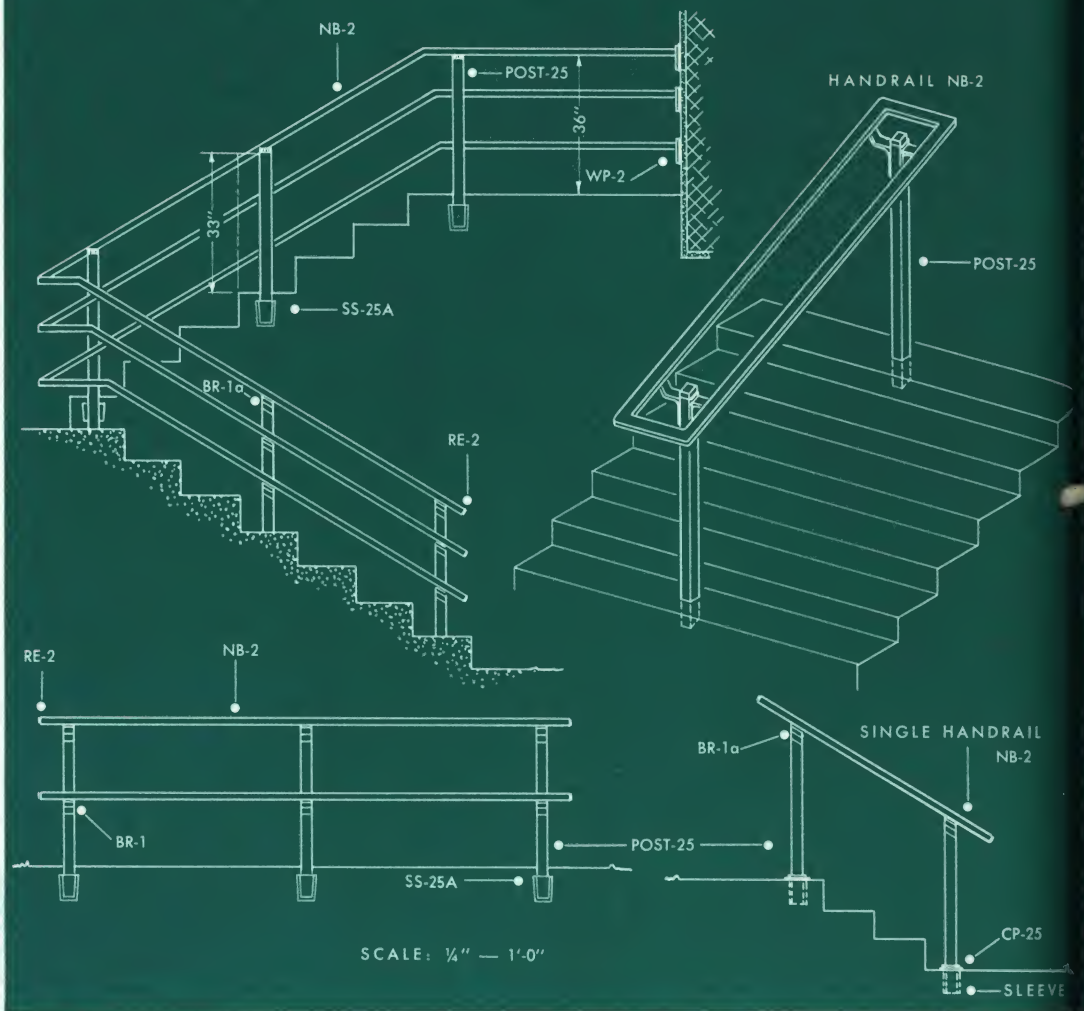
CATALOGUE E-9 • A.I.A. 14-D-4

ECONO-RAIL
(TRADEMARK)

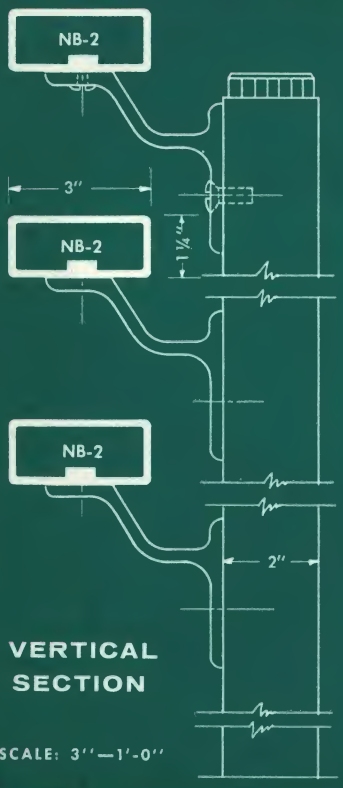


POST 25

SUGGESTED APPLICATIONS



SCALE: ¼" — 1'-0"

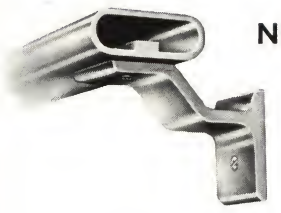


VERTICAL SECTION

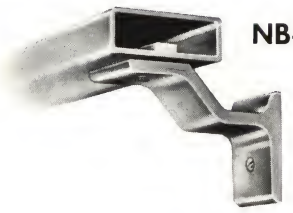
SCALE: 3"—1'-0"

OPTIONAL HORIZONTAL RAILS

SEE FULL SIZE DETAILS — PG. 10 & 11



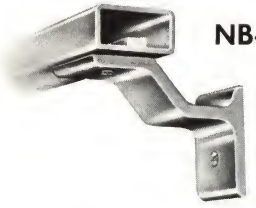
NB-1



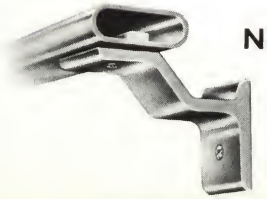
NB-2



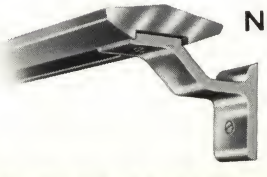
NB-5



NB-22

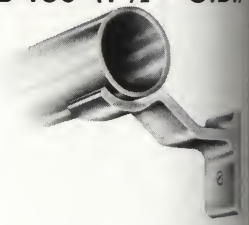


NB-11



NB-6

NB-3 (2½" O.D.)
NB-4 (2" O.D.)
NB-175 (1¾" O.D.)
NB-150 (1½" O.D.)

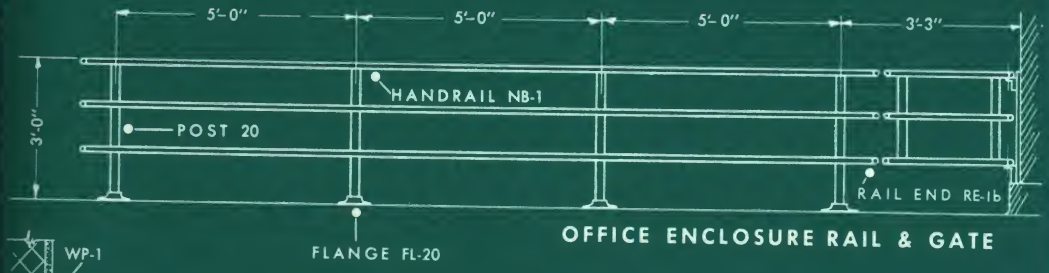


USE BRACKETS TO CORRESPOND WITH ROUND HANDRAIL SECTION

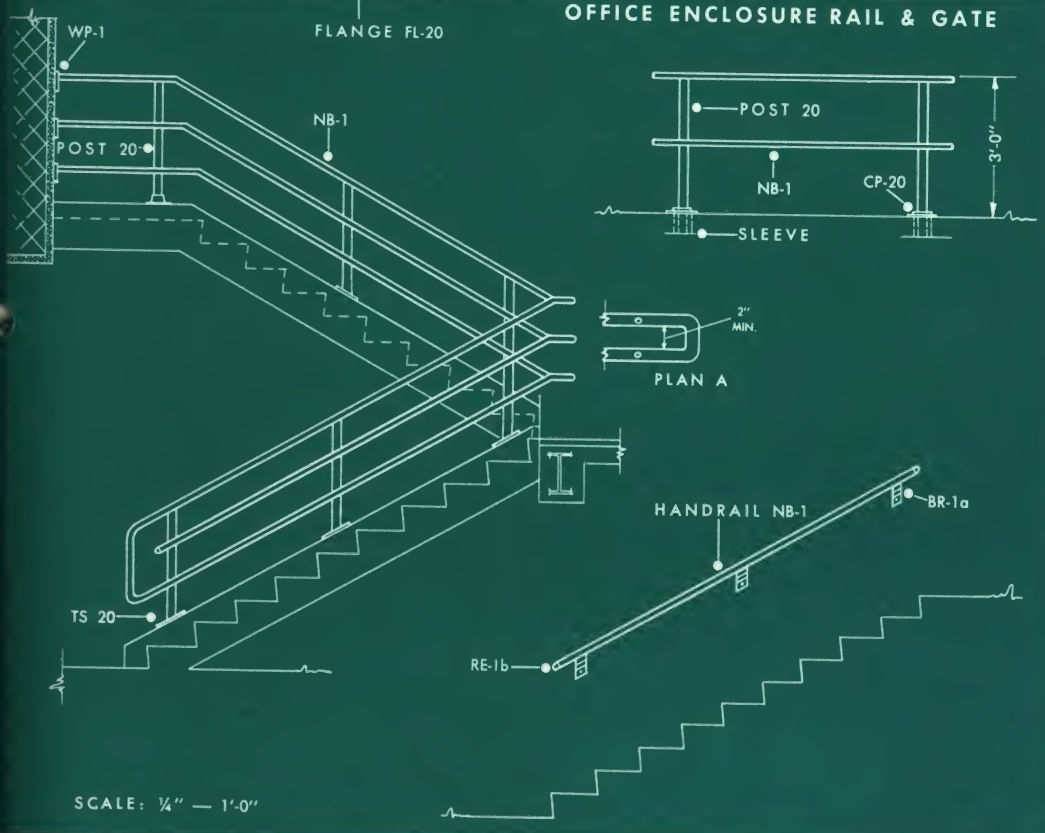
USE BRACKETS BR-1 (SHOWN) OR BR-1a

PATENTE

SUGGESTED APPLICATIONS

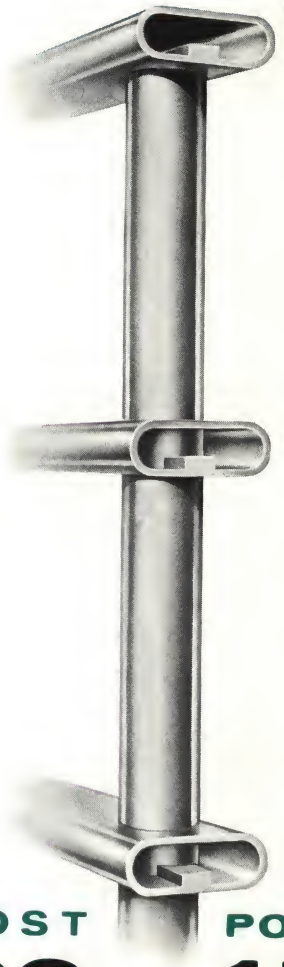


OFFICE ENCLOSURE RAIL & GATE



SCALE: ¼" — 1'-0"

ECONO-RAIL (TRADEMARK) 6e New

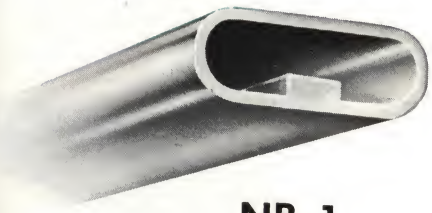


POST 20 (2" O.D.)

POST 17 (1¾" O.D.)

OPTIONAL HORIZONTAL RAILS

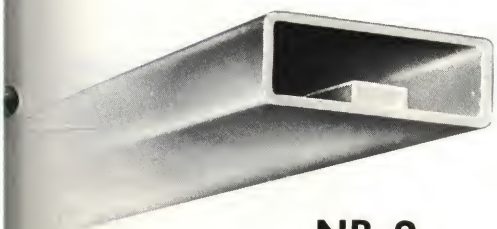
SEE FULL SIZE DETAILS — PG. 10 & 11



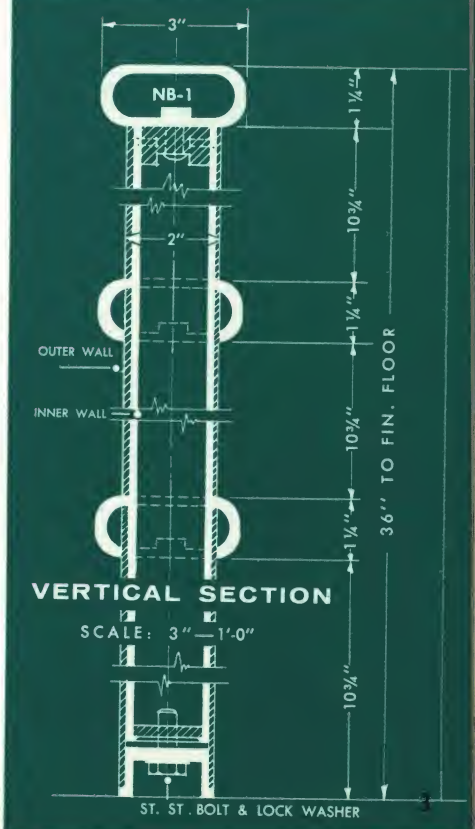
NB-1



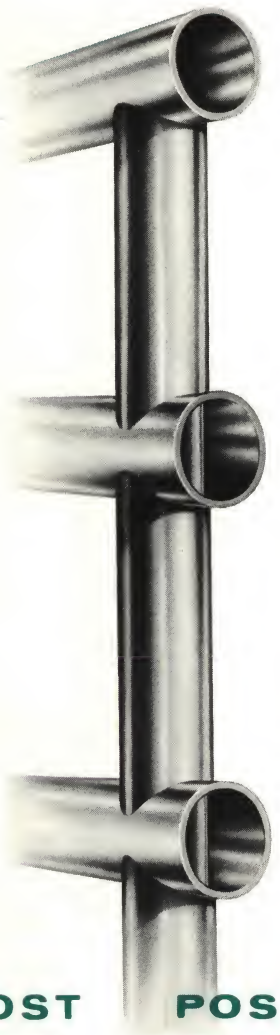
NB-3



NB-2



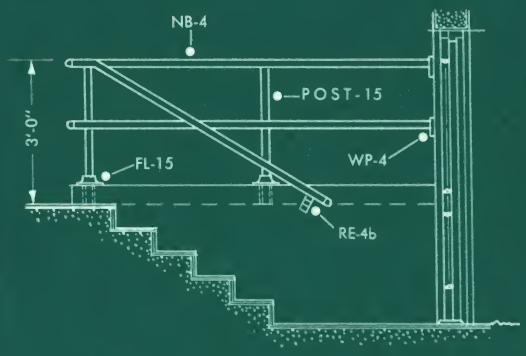
ECONO-RAIL
(TRADEMARK)

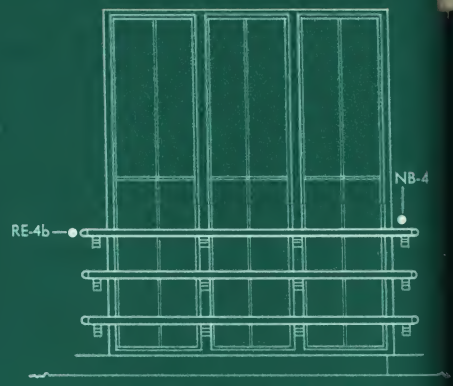


POST 15 (1½" O.D.)

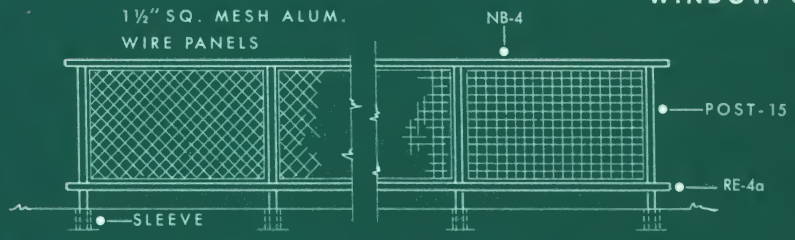
POST 17 (1¾" O.D.)

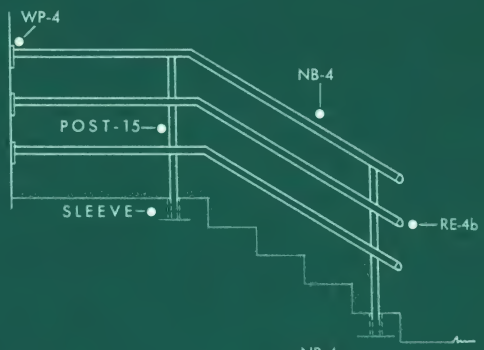
SUGGESTED APPLICATIONS

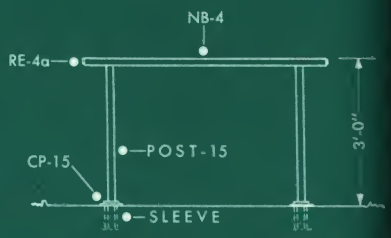




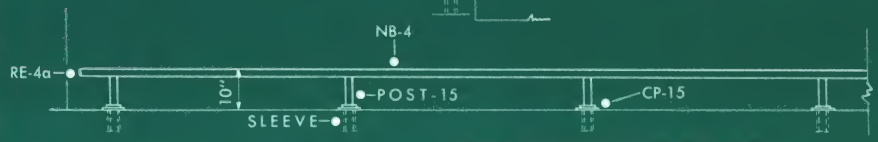
WINDOW GUARD RAILS





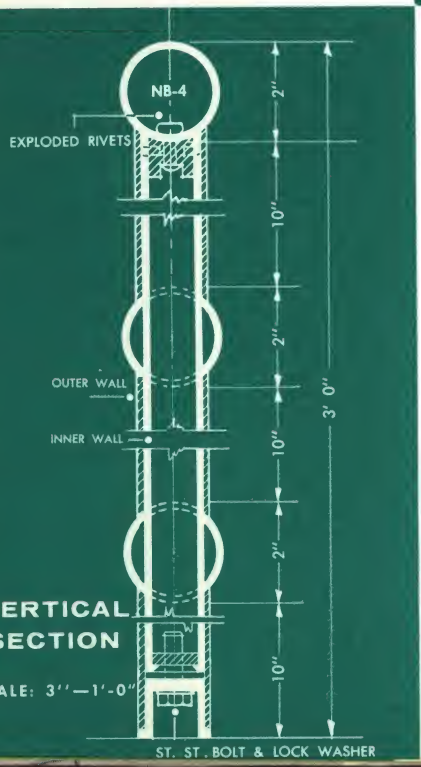


CAFETERIA GUIDE RAIL



SCALE: ¼"—1'-0"

BALCONY GUARD RAIL

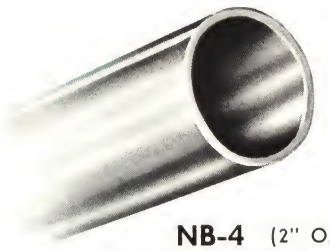


VERTICAL SECTION

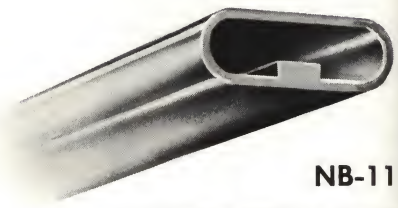
SCALE: 3"—1'-0"

OPTIONAL HORIZONTAL RAILS

SEE FULL SIZE DETAILS—PG. 10 & 11



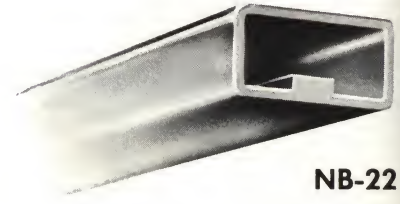
NB-4 (2" O.D.)
USE WITH POST 15 OR 17 ONLY
NB-175 (1¾" O.D.)
USE WITH POST 15 ONLY



NB-11
USE WITH POST 15 ONLY



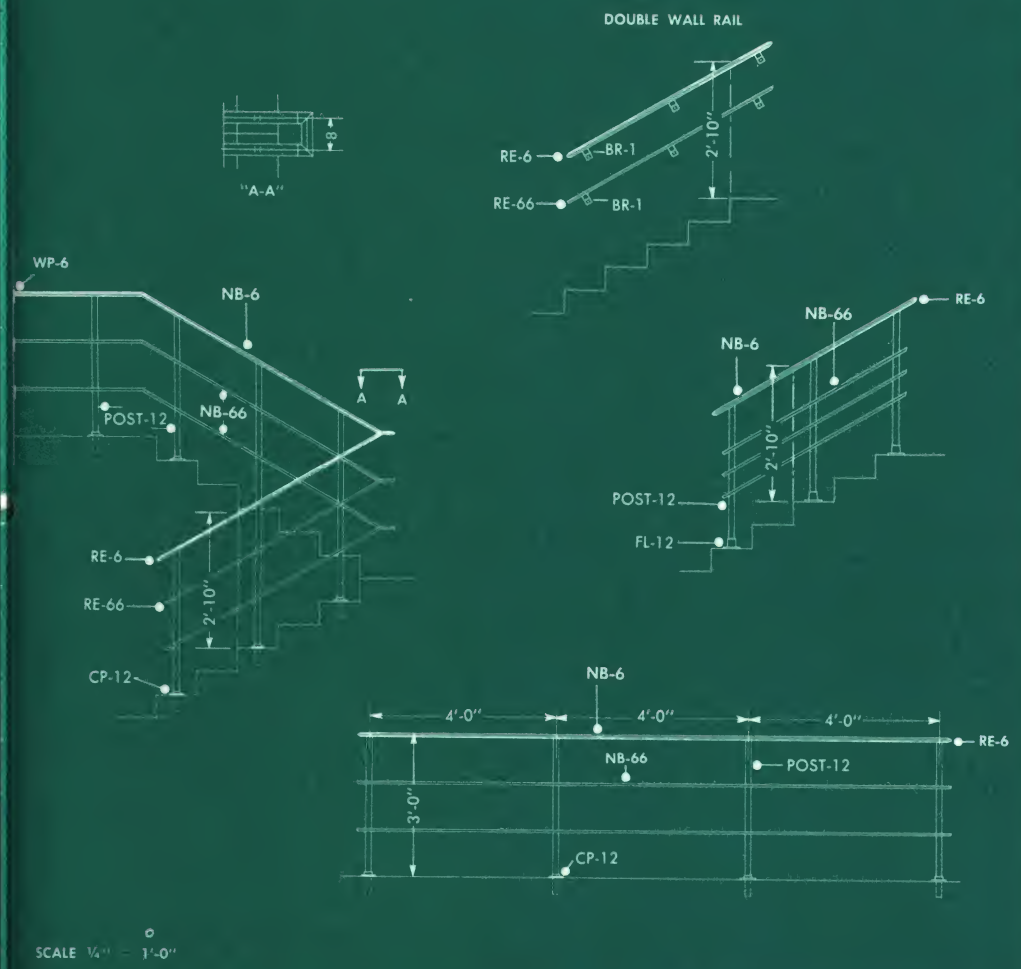
NB-5



NB-22

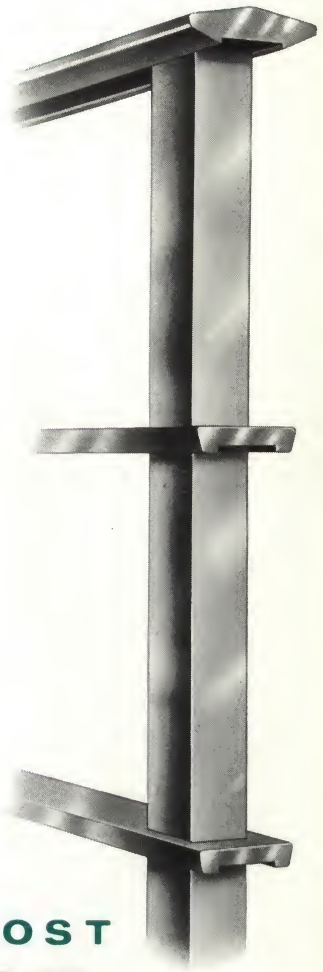
PATENTE

SUGGESTED APPLICATIONS



SCALE ¼" = 1'-0"

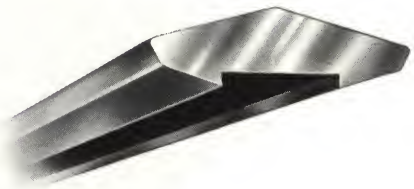
ECONO-RAIL
(TRADEMARK)



POST 12 (1¼" SQ.)

HORIZONTAL RAILS

SEE FULL SIZE DETAILS — PG. 10 & 11



NB-6

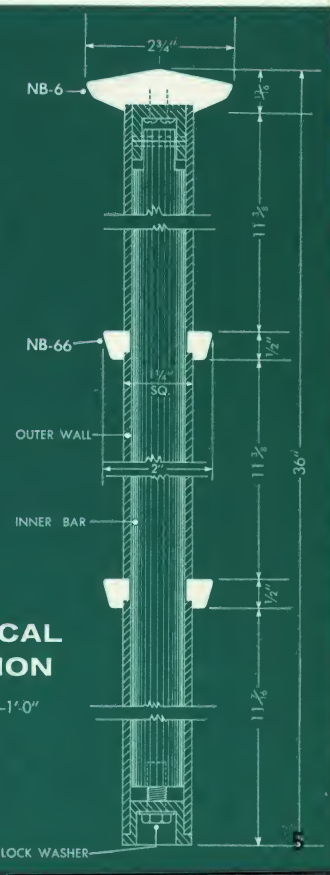
USE FOR TOP RAIL ONLY

NB-6 and NB-66

TO BE USED WITH POST 12 ONLY



NB-66



VERTICAL SECTION

SCALE: 3"–1'-0"

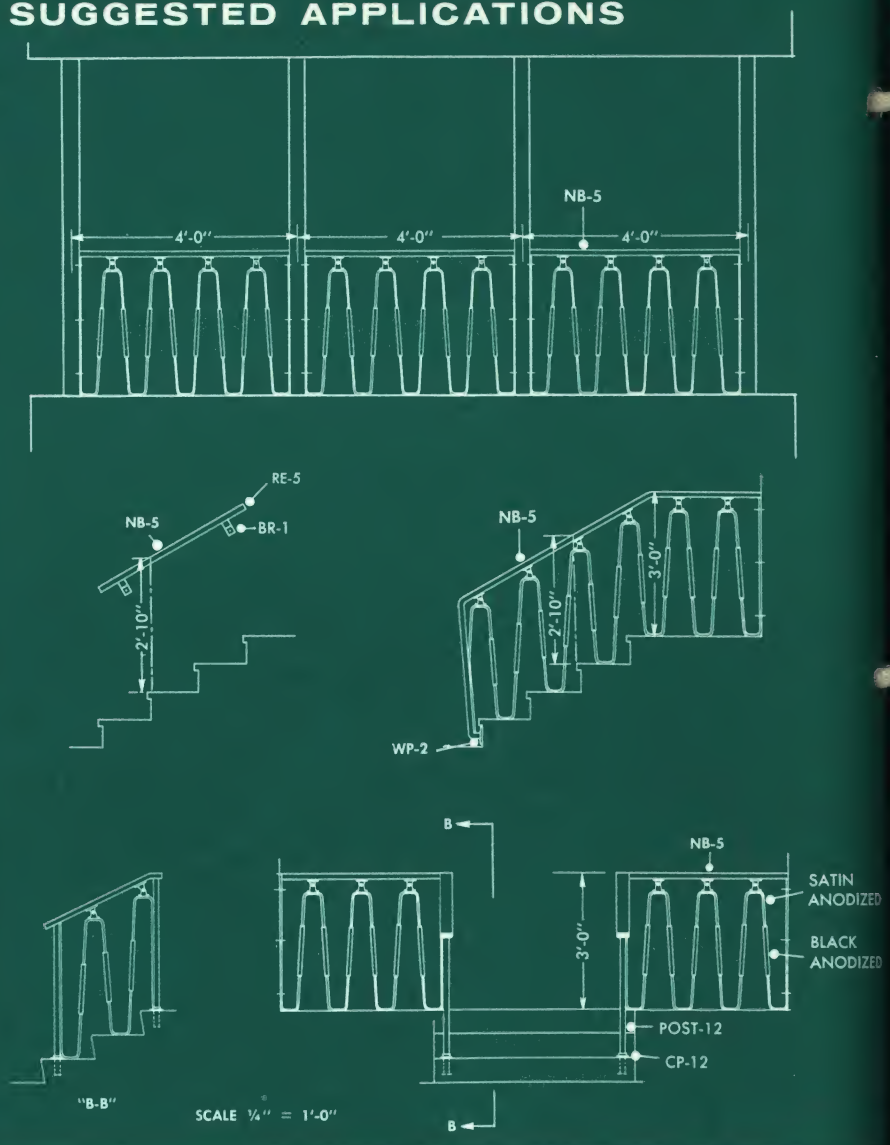
S. & CANADA

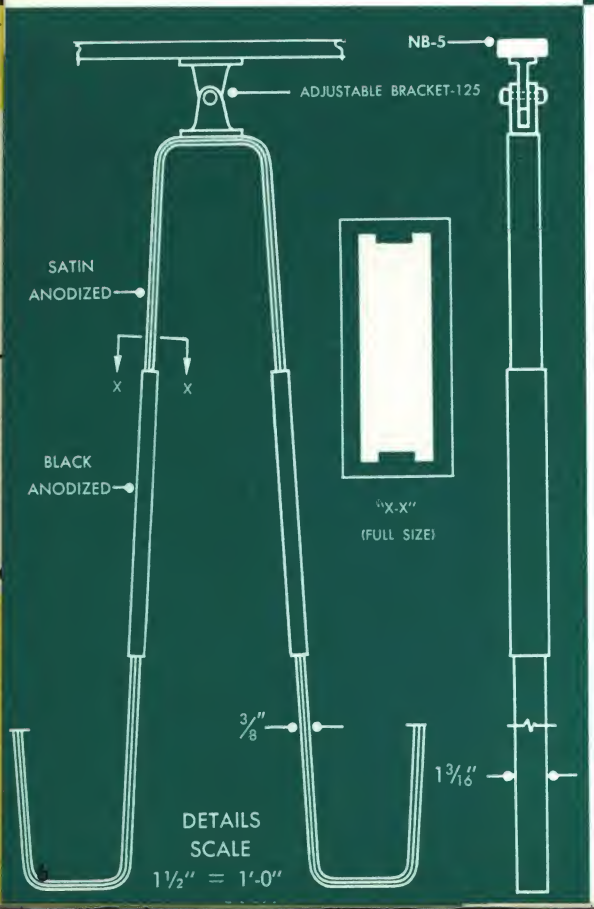
ECONO-RAIL
(TRADEMARK)



RIBBON BALUSTER
125

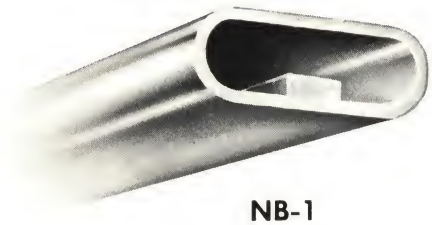
SUGGESTED APPLICATIONS



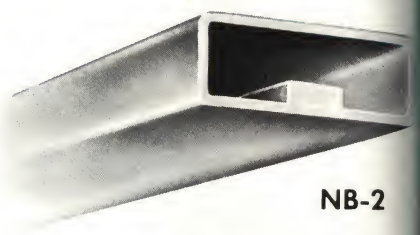


OPTIONAL HORIZONTAL RAILS

SEE FULL SIZE DETAILS — PG. 10 & 11



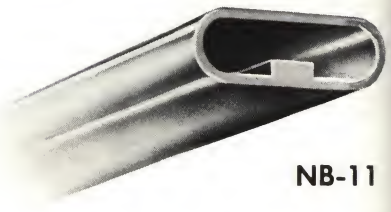
NB-1



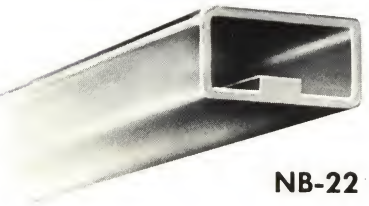
NB-2



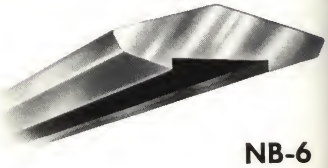
NB-5



NB-11



NB-22



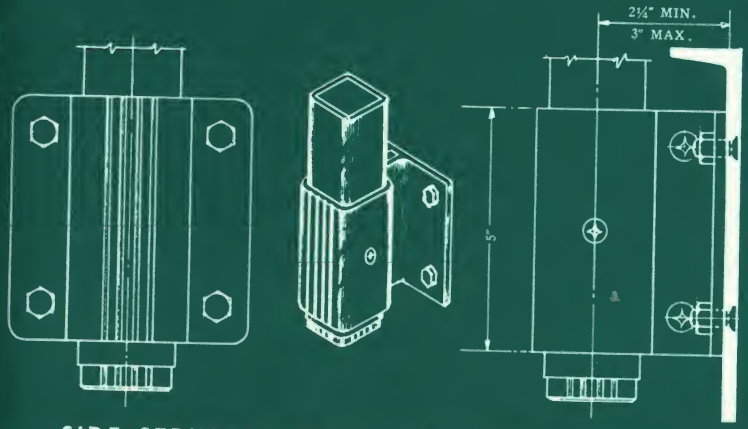
NB-6

PATENTE

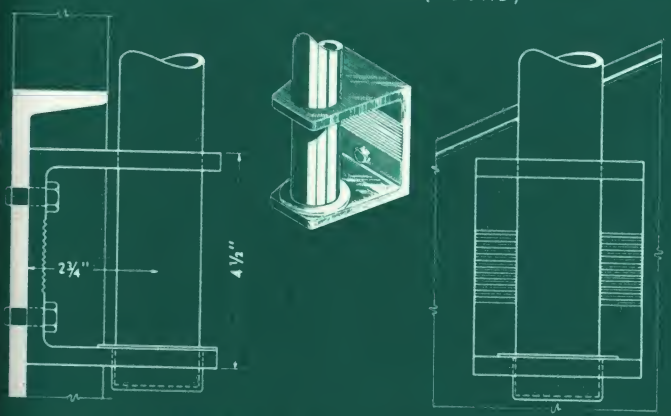
FITTINGS

SCALE: 3" — 1'-0"

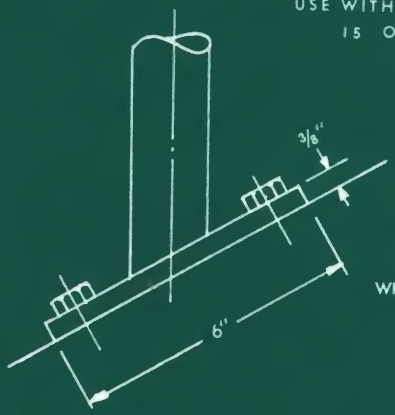
6e
New



SIDE STRINGER MOUNTING SS-25A (SQUARE)
ALSO SS-20A (ROUND)

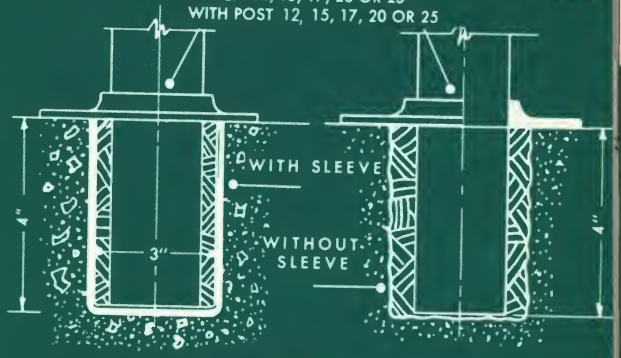


SIDE STRINGER MOUNTING SS-17
USE WITH POST-17, 15 OR 12

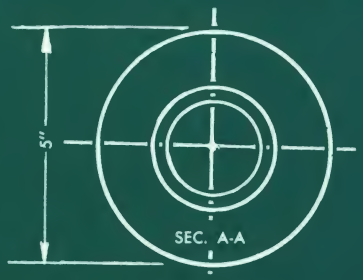


TOP STRINGER MOUNTING
USE TS-15, 17, 20 OR 12
WITH POST 15, 17, 20 OR 12

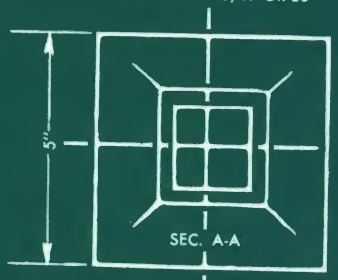
COVER PLATE
USE CP- 12, 15, 17, 20 OR 25
WITH POST 12, 15, 17, 20 OR 25



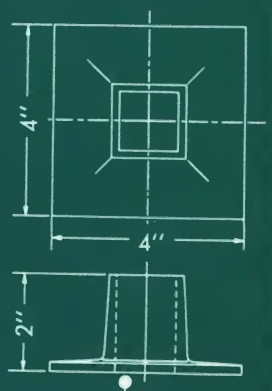
ANCHORAGE IN CONCRETE



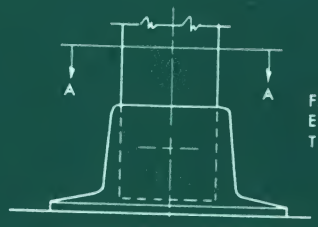
USE FL-15, 17 OR 20
WITH POST 15, 17 OR 20



USE FL-25 WITH
POST-25

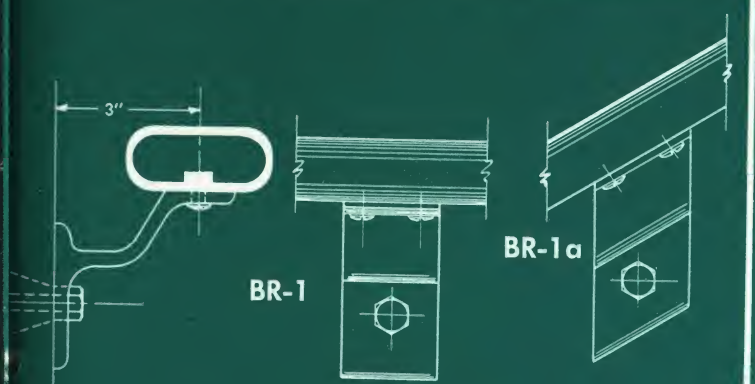


FL-12
USE FL-12 WITH
POST-12

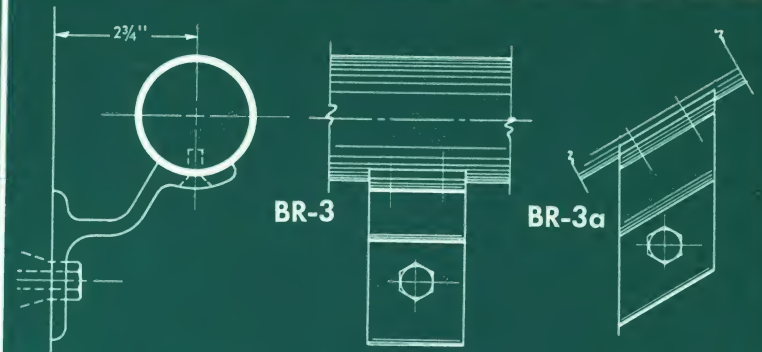


FASTENING WITH WOOD SCREWS,
EXPANSION BOLTS, OR
TO SUIT CONDITIONS

FLOOR FLANGE



USE WITH HANDRAILS
NB-1, NB-2, NB-5, NB-6
NB-11, NB-22, NB-66

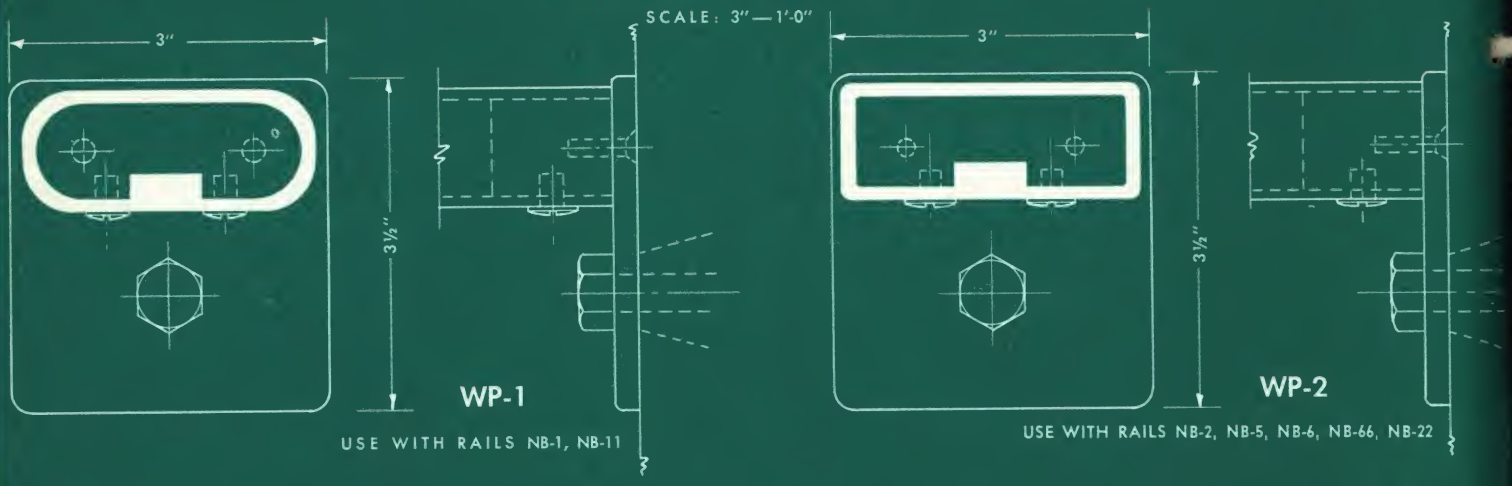


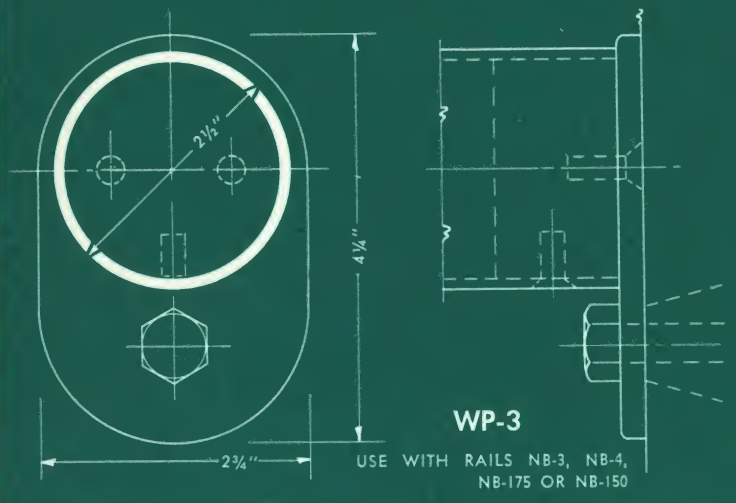
BRACKETS FOR OTHER ROUND RAILS SIMILAR
USE WITH HANDRAILS NB-3, NB-4, NB-175, NB-150

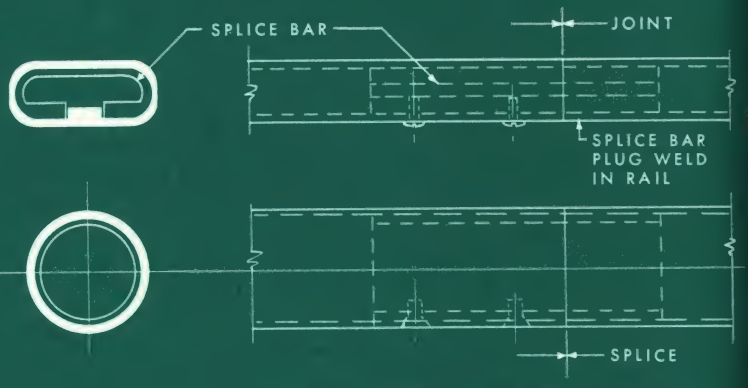
WALL BRACKETS

SCALE: 3" — 1'-0"

WALL PLATES







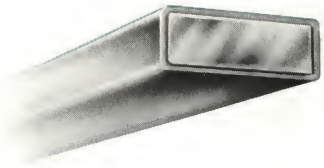
TYPICAL SPLICE JOINTS

RAIL ENDS



RE-1b

USE WITH RAILS NB-1 OR NB-11



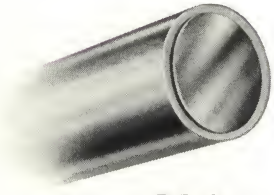
RE-2

USE WITH RAILS NB-2 OR NB-22



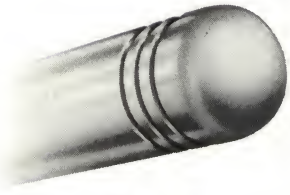
RE-6

USE WITH RAIL NB-6



RE-4a

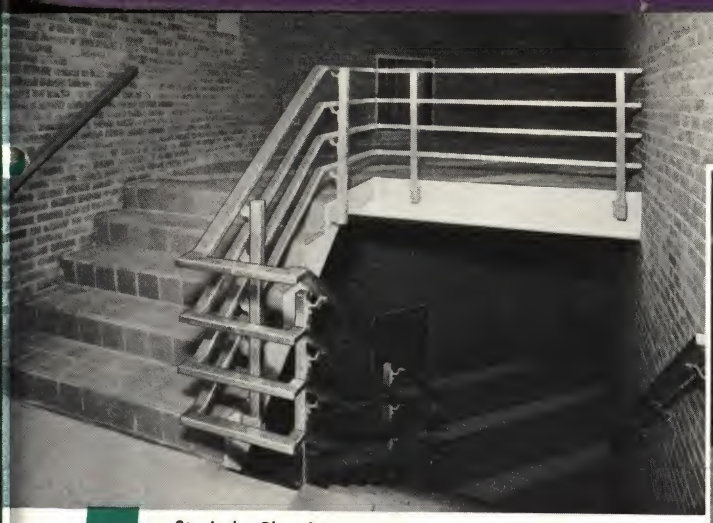
USE WITH RAILS NB-3, NB-4, NB-175 OR NB-150



RE-4b

PATENTED

REPRESENTATIVE ECONO-RAIL (TRADEMARK) INSTALLATIONS



St. Jude Church
Gardner, Holtmeier & Burdick—Architects



Community Service Bldg.
Lorenz & Williams—Architects



Beerman Bldg.
Louis Klein—Architect



Swifton Shopping Center
David Lieberman—Architects



Ohio Theatre
Geo Bauer, Designer



Home Store
Coates, Weiler & Wagenknecht
—Architects

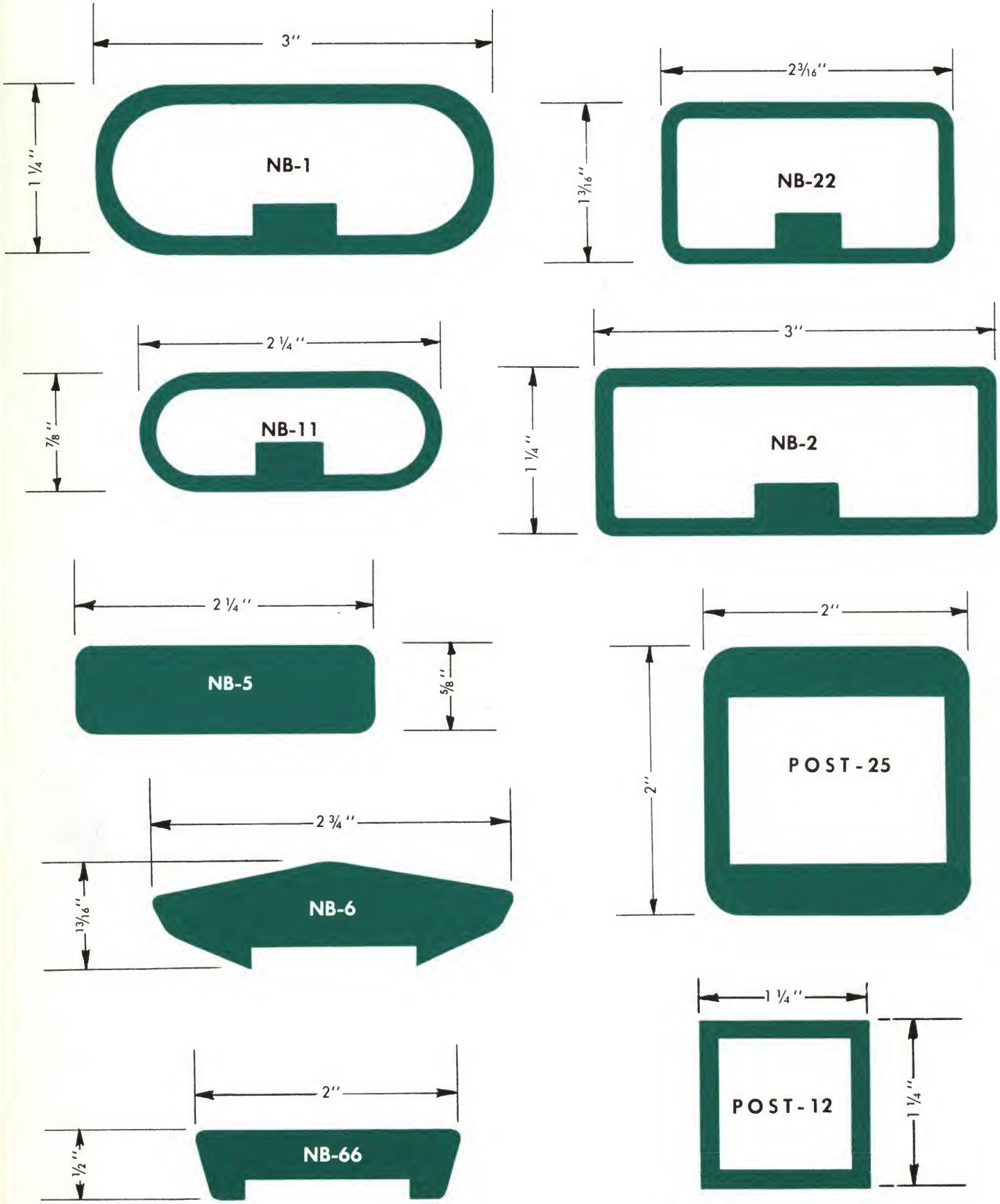


Far Hills Bldg.
Sullivan, Isaacs & Sullivan—Architects



S.S. Aquarama

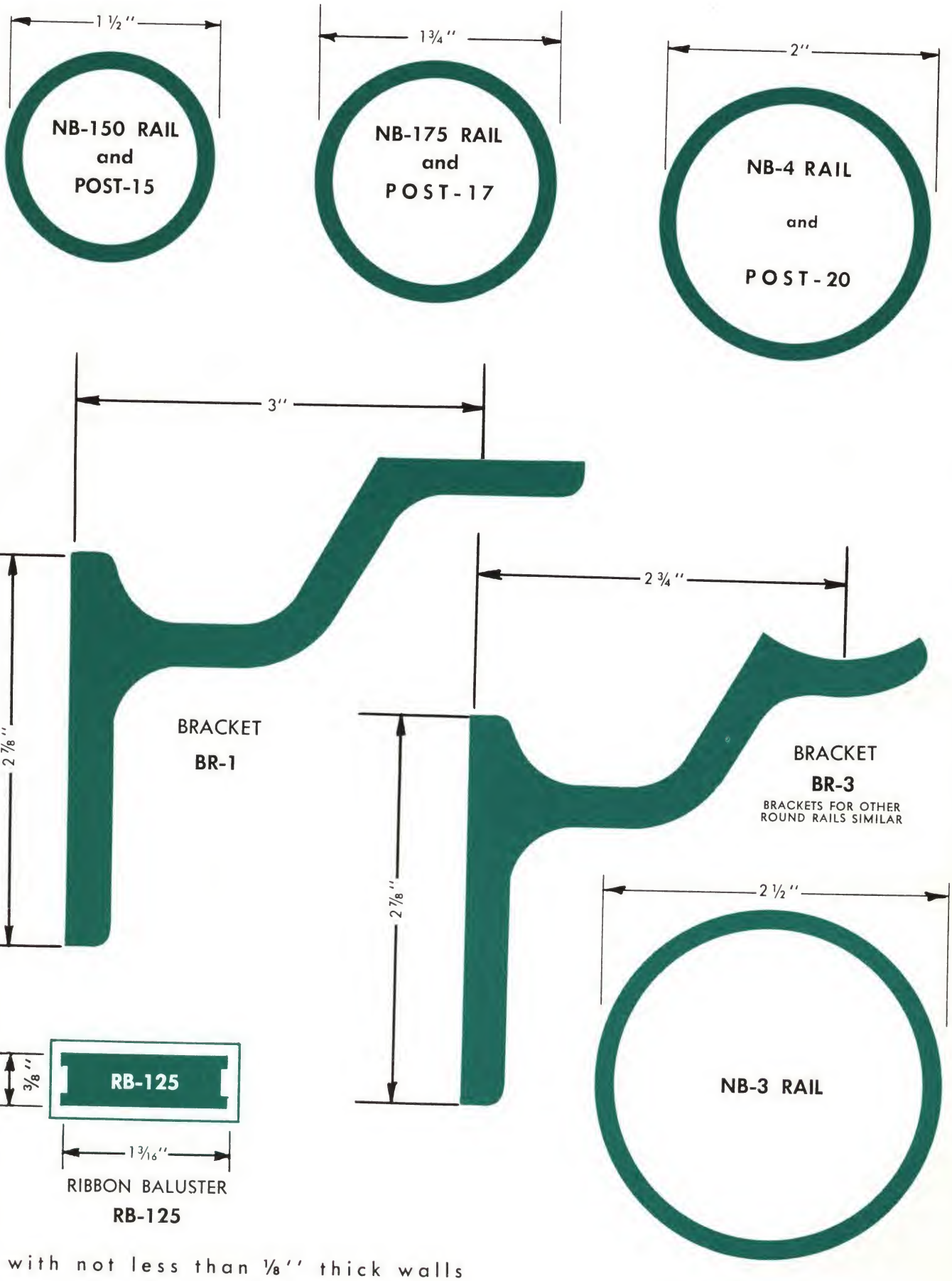
FULL SIZE



MATERIAL: Extruded aluminum alloy No

PATENTED

DETAILS



ST5 with not less than ⅛" thick walls

STRONG WHERE STRENGTH COUNTS...WITH ECONOMICAL DOUBLE-WALL CONSTRUCTION

The Newman "**ECONO-RAIL**" combines all of the requisite qualities of rigidity and enduring strength with SUBSTANTIAL SAVINGS OVER OLD STYLE RAILINGS BECAUSE 90% OF THE WELDING IS COMPLETELY ELIMINATED.

This is particularly important when railings are to be anodized for it eliminates the problem of discoloration of the joints. The "**ECONO-RAIL**" has accurately machined, rigidly reinforced joints, utilizing mechanical *Double-Wall* construction . . . vibration- and impact-resistant. It has been thoroughly tested in hundreds of government and private buildings over a period of several years. And price-wise . . . in many cases **ECONO-RAILS** compare favorably with galvanized welded iron rails. Maintenance expense is eliminated.

SUGGESTED SPECIFICATIONS

All tubular aluminum railings are to be "ECONO-RAILS," manufactured by Newman Brothers, Inc., Cincinnati, Ohio, of mechanical Double-Wall construction.
Material: Railings shall be made of extruded aluminum, No. 6063ST5 alloy, with not less than 1/8" thick walls.
All fittings and fasteners to be non-ferrous metals.
Joints between vertical and horizontal members shall be accurately machined to be sharp and true, and free from discolorations.

Finish: Finish shall be brushed-satin and waxed (for interior railings) or brushed-satin anodized (for exterior railings).

Railings shall be completely factory-assembled and complete with all necessary fastenings, ready to erect.

NEWMAN REPRESENTATIVES

ALABAMA
Wilson Door & Window Sply. Co.
716 8th Court, W.
Birmingham — AL 1-4533

ARIZONA
Maurice B. Liddell
906 W. Campus Dr.
Phoenix — Amherst 6-3697

ARKANSAS
G. R. Schmelzer Sales Assoc.
200 River Rd.
Little Rock — Mohawk 6-6664

CALIFORNIA
Europa Co.
P. O. Box 27073
Los Angeles 27 — Normandy 5-5324

George F. Nelson
850 South Van Ness Ave.
San Francisco — ATwater 2-8220

COLORADO
Leever-Post Co.
P. O. Box 5046
Denver 19 — Amherst 6-2475

FLORIDA
R. E. Gall
P. O. Box 67
Daytona Beach — Clinton 3-1421

McCaa & Co.
1205 W. Government St.
Pensacola — HE 8-1623

Florida Distr's.
P. O. Box 801
Tampa 9 — REdwood 6-6768

GEORGIA
F. Graham Williams Co.. Inc.
1690 Monroe Dr., N. E.
Atlanta 9 — Trinity 6-1084

HAWAII
M. W. Rasmussen Co.
1245 Ainakoa Ave.
Honolulu 16 — 736211

IDAHO
Casco Company
P. O. Box 335
Boise — 3-3758

ILLINOIS
C. & H. Building Spec.
2227 W. Belmont Ave.
Chicago 18 — DI 8-1211

INDIANA
Enterprise Metal Prod.
P. O. Box 127
Terre Haute — Lincoln 8188
(South Bend Area Call Chicago)

KANSAS
The Lusco Brick & Stone Co.
1136 Southwest Blvd.
Kansas City 3 — JO 2-5850

The Lusco Brick & Stone Co.
342 N. Waco St.
Wichita — AM 2-0406

KENTUCKY
J. W. Shaughnessy Co.
P. O. Box 144
Valley Station
Louisville — Warwick 1-3041

LOUISIANA
A. B. Broussard & Sons, Inc.
P. O. Box 1710
Baton Rouge — DIckens 4-3703

Alumaglass Bldg. Prod., Inc.
739 S. Clark St.
New Orleans — Audubon 0844

Ideal Bldg. Mat'ls.
P. O. Box 1545
Shereveport — FL 70521

MARYLAND
The Lea Co.
2225 St. Paul St.
Baltimore 18 — Belmont 5-7781

MASSACHUSETTS
Doherty Assoc.
750 Main
Winchester (Boston) — Parkway 9-4356

MICHIGAN
Western Concrete Prod. Co.
510 Fifth St.
Cadillac — Prospect 5-3466

H. Edward Brunhoff, Jr.
P. O. Box 93-C
Grand Rapids — Glendale 2-4808

Robbie Robinson Co.
17626 James Couzens Hwy.
Detroit 35 — University 4-1108

MINNESOTA
James C. Nystrom
Northwestern Bank Bldg.
Minneapolis — Federal 9-2842

MISSOURI
Lange-Schmidt Co.
8230 Forsyth Blvd.
St. Louis — Parkview 5-6654

MONTANA
Stroup Hardware Co., Inc.
2816 Minnesota Ave.
Billings — CH 5-3186

NEBRASKA
Simpson-Goodwin Co.
4403 N. 20th St.
Omaha 11 — Pleasant 7500

NEW JERSEY
Gilbert Assoc.
25 Broad St.
Palisades Park — Whitney 3-7772
(Camden Area Call Phila.)

NEW MEXICO
Stepco
P. O. Box 8026
Albuquerque — Alpine 69612

NEW YORK
Bronsteel Prod. Corp.
1965 Sheridan Dr.
Buffalo 23 — Bedford 7890

M-S Building Prod. Co.
323 E. 66th St.
New York 21
Regent 4-1553

W. F. Decker, Inc.
Stoney Point
Webster (Rochester) — Butler 8-4816

NORTH CAROLINA
F. Graham Williams Co., Inc.
1226 Salem Dr.
Charlotte 9 — Franklin 6-1149

F. Graham Williams Co., Inc.
728 Sycamore St.
Rocky Mount — Gibson 65810

OHIO
Stern Sales Co.
3310 Warrensville Center Rd.
Cleveland 22 — Skyline 1-2282

G. E. Henry Co.
529 E. Town St.
Columbus — CA 4-8362

OREGON
W. E. Coleman Co.
904 S. E. Division Pl.
Portland 2 — BElmont 2-3143

PENNSYLVANIA
Nico Sply. Co.
1700 Walnut St.
Philadelphia 3 — 5-4727

Engineering Sales Co.
550 McNeilly Rd.
Pittsburgh 26 — Lehigh 1-3545

Fred R. Evans
312 Madison Ave.
Scranton — Diamond 7-9691

TENNESSEE
Memphis Area
See Little Rock, Ark.

TEXAS
R. A. Gilbert Co., Inc.
Perry-Brooks Bldg.
Austin 1 — GR 6-6229

Anco Sales Co.
P. O. Box 7293
Corpus Christi — TE 5-6259

Volkmer and Kratz Co.
P. O. Box 35353
Dallas 35 — FL 7-6466

Stepco
P. O. Box 3626
El Paso — Prospect 2-5274

Lehman Steel Prod. Co.
P. O. Box 6772
Houston 5 — Jackson 3-2511

UTAH
Scott Sply. Co.
P. O. Box 2157
Salt Lake City 10 — EM 3-7877

VIRGINIA
Lewis & Sale, Inc.
P. O. Box 6155
Norfolk — Madison 7-9091

WASHINGTON
Foster-Bray Co.
174 Denny Way
Seattle — Main 2-0525

Brant Bernhard Corp.
Box 1796
Spokane 10 — RI 7-2081

WEST VIRGINIA
Valley Architectural Prod. Co.
Box 468
Wheeling — Cedar 2-8964

WISCONSIN
Contact Chicago Office

CANADA
Dominion Alum. Fabricating, Ltd.
10 Jutland Rd.
Toronto 18 — CLifford 1-2236

NEWMAN BROTHERS, INC.
EST. 1882

670-678 W. FOURTH ST. CINCINNATI 3, OHIO

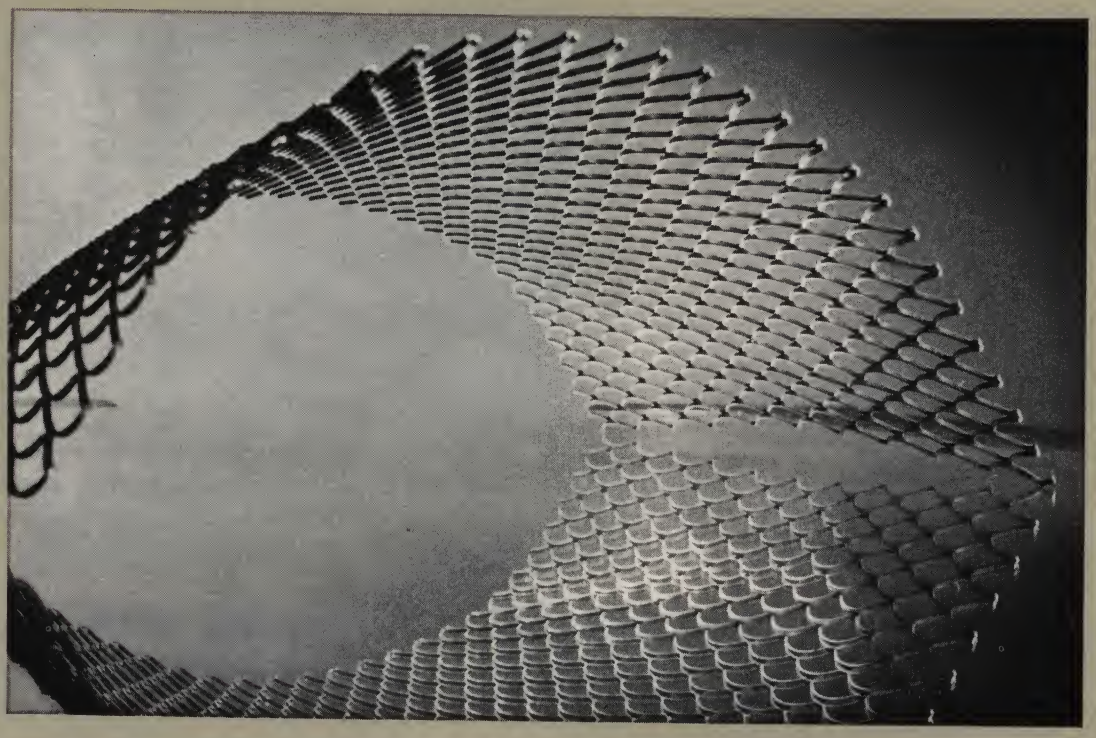
ARCHITECTURAL METAL WORK

CURTAIN WALLS - WINDOWS - SPANDRELS - "ECONO-RAILS"
SPECIAL RAILINGS - DOORS - ENTRANCES - CAST ALUMINUM
AND BRONZE TABLETS - SIGNS - MARKERS & LETTERS

6e
Un

TECHNICAL INFORMATION

USG® EXPANDED METALS



UNITED STATES GYPSUM

1960

EXPANDED METALS BY UNITED STATES GYPSUM

THE SHAPE OF THINGS TO COME

At a time when our economy has demonstrated its greatest need for product innovations to stimulate consumer buying, United States Gypsum presents advanced designs in expanded metals for new ideas in architectural and product design.

Six dramatic new patterns—ARMOR-WEAVE, FESTOON, CATHEDRAL, WAVELENGTH, RONDO and MIN-X—join the accepted and widely used EXPAND-X expanded metal pattern to offer an exciting new series of expanded metals that open new frontiers for everyone concerned with design, manufacture and sale of products for better living.

Here, from the drawing boards at U.S.G., come expanded metals with new warmth of appearance, with greater resistance to bending and less weight than the solid metal sheets from which they are made. Sheets of metal are slit and cold-drawn into continuous patterns. The strands and bonds of resulting meshes come to rest at a sharp angle to the original plane of the sheet, adding rigidity. Expanded metals in this form have thousands of uses. U.S.G. also produces these meshes flattened by pressure rolls, for applications where a smooth surface is desired. These versatile meshes are available in carbon steel, aluminum, and in some meshes, stainless steel.

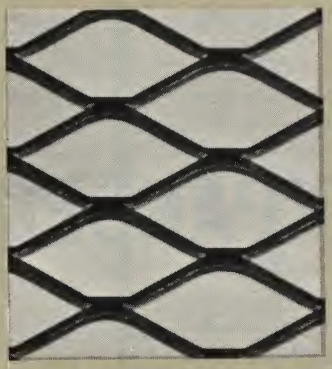
You who create, make and sell America's buildings and products can expand your horizons by adapting these decorative expanded metals to your purposes; can fashion, with new freedom, *the shape of things to come.*

AID TO ARCHITECTS AND DESIGNERS

To promote a better understanding of expanded metals and their use, and assure a satisfactory result for you; we offer design and sales service to aid architects and designers. A staff of engineers is equipped to assist in working out specific problems concerning design, fabrication, finishing and attachment of expanded metals. This service involves no obligation.

See Page 16 for a listing of offices where U.S.G. Sales Engineers and Architects Service Representatives are located.

EXPAND-X EXPANDED METAL

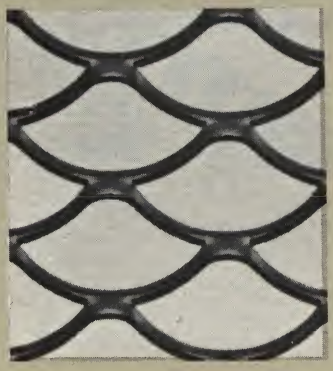


EXPAND-X is a diamond-shaped pattern of expanded metal with many applications in industrial plants and products. Its advantages over solid sheets—greater strength with less weight, visibility, free passage of light and air—make it ideally suited where protection, reinforcement, air flow and lighting are important.

When EXPAND-X is flattened in manufacture, the smooth level surface produced makes this expanded metal adaptable to hundreds of other uses.

EXPAND-X and Flattened EXPAND-X are available in a variety of weights and mesh sizes to meet varying conditions. See Pages 4 to 7 for information on these products.

DECORATIVE EXPANDED METAL



The six patterns of U.S.G. Decorative Expanded Metals are stimulating new ideas for product designers and architects everywhere. Here are materials that enhance a product's appearance and sales appeal while providing the advantages of light weight, strength and ease of fabrication.

Available in a variety of meshes—for appropriate visibility through the mesh; for air flow; for pleasing appearance; for modern functional styling. With these meshes you can achieve design treatments that add substantially to the product or building.

USG Decorative Expanded Metal is practical as well as beautiful. Special manufacturing techniques make them lighter, yet more rigid than solid sheet materials. They will not ravel when cut and may be easily welded and formed. Here, then, are materials which combine the beauty and utility so vital to the design of any product or building.

See Pages 8 to 11 for information on these products.

GRATE-X metal grating, a heavy type expanded metal.

AVAILABLE METALS

EXPAND-X and Flattened EXPAND-X manufactured from carbon steel, stainless steel and aluminum are available from stock. U.S.G. Decorative Expanded Metals are produced from carbon steel and aluminum. Other metals and alloys may be expanded to meet special requirements. Consult your nearest U.S.G. Sales Office for details and additional information. (See Page 16 for a list of offices).

FABRICATION

USG* Expanded Metals may readily be fabricated and formed in the same accustomed ways as sheet metals. They do not ravel when cut. They may be welded without difficulty, and absence of scale on the mesh facilitates perfect welds.

FINISHING

Architects and designers find many delightful color combinations in using painted, anodized or porcelain enameled USG Expanded Metals in correlation with colored fabrics or other materials. Painting and other types of finishing offer no problems with USG Expanded Metals. The surfaces are readily accessible to paint. All the accepted industrial methods of application may be used. USG aluminum Expanded Metal is easily anodized. Either steel or aluminum expanded metals can be successfully porcelain enameled in a wide range of colors. Additional information on finishing USG Expanded Metals may be found on Page 13.

NATIONWIDE DISTRIBUTION

Whatever your need for expanded metal, a U.S.G. Expanded Metal Distributor is ready to serve you. His warehouse is stocked with USG Expanded Metals to assure you of the prompt service you need *when you need it.* Contact the U.S.G. Sales Office for the name of the nearest distributor.

"USG", "GRATE-X" and "EXPAND-X" are registered trade-marks, and "RONDO", "FESTOON", "WAVELENGTH", "CATHEDRAL", "MIN-X", and "ARMORWEAVE" are trade-marks owned by the United States Gypsum Company, and all identify the particular expanded metal manufactured only by United States Gypsum Company.

REPRESENTATIVE USES

Architectural

- Air Duct Outlets
- Areaway Guards
- Shelving
- Storage Lockers
- Stairway Enclosures
- Laundry Partitions
- Factory Enclosures
- Skylight Guards
- Conveyor Guards
- Ceilings
- Partitions
- Accent Points
- Railing Guards
- Decorative Trim
- Patio Coverings
- Building Facades
- Ornamental Grilles
- Sun Screens
- Jalousie Covers
- Shutters
- Fencing
- Louvers
- Awnings
- Sign Backgrounds
- Space Dividers
- Folding Door Grilles

In Products

- Annealing Baskets
- Grain Driers
- Machine Guards
- Intake Grilles
- Harvesting Baskets
- Display Racks
- Filter Screens
- Tool Stand Shelves
- Drying Trays
- Displays
- Range Hood Vent
- Lawn Mower Guard
- Air Conditioner Grille
- Ornamental Screens
- Lamps
- Automobile Grille
- Beverage Racks
- Cabinet Doors
- Furnace Grilles
- Porch Furniture
- Breakfront Grilles
- Freezer Vent
- TV and Radio Grilles
- Book Shelves
- Screen Door Guards
- Room Dividers

Gratings, Walkways, Platforms, Stair Treads, Flooring, Scaffolding.

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DECORATIVE Expanded Metal

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ARCHITECTURAL: Decorative Facia & Sun Shade



IN PRODUCT: Decorative Grille

EXPAND-X*
EXPANDED METAL

DESCRIPTION

Below: are the USG Expanded Metals which impart their advantages to thousands of applications to make them lighter, stronger and more attractive.

EXPAND-X Expanded Metal is the diamond-shaped product in unflattened form. The strands and bonds are at a sharp angle to the original plane of the sheet. This factor adds strength to the expanded product.

FLATTENED EXPAND-X is made by passing the diamond-shaped expanded metal between pressure rolls. These flatten the material so that strands and bonds are in the same plane. This produces a material suitable for applications where a smooth flat surface is desirable.

DECORATIVE EXPANDED METAL offers design possibilities unlimited. Each expanded metal pattern is versatile enough to serve as the main design element, or to lend a valuable assist in the form of ornamental decoration.

The six decorative patterns—ARMORWEAVE, FESTOON, CATHEDRAL, WAVELENGTH, RONDO and MIN-X—retain the many important practical advantages of EXPAND-X and provide a design motif about which the architect or designer can exercise his personal creativity.

See Pages 8 to 11 for information on these products.

GRATE-X* Expanded Metal is a heavy type metal grating.

PROJECTION MESH is produced with small toothlike projections on the upper surface for maximum anti-skid qualities.

See Page 16 for detailed information on GRATE-X and PROJECTION MESH.

ADVANTAGES

Made in a wide selection of gauges and sizes. Light weight, with the other "plus" features of expanded metal compared to the original solid sheet. Since its introduction it has been a new material with a "thousand and one" new uses. It can be cut without raveling, and formed or welded.

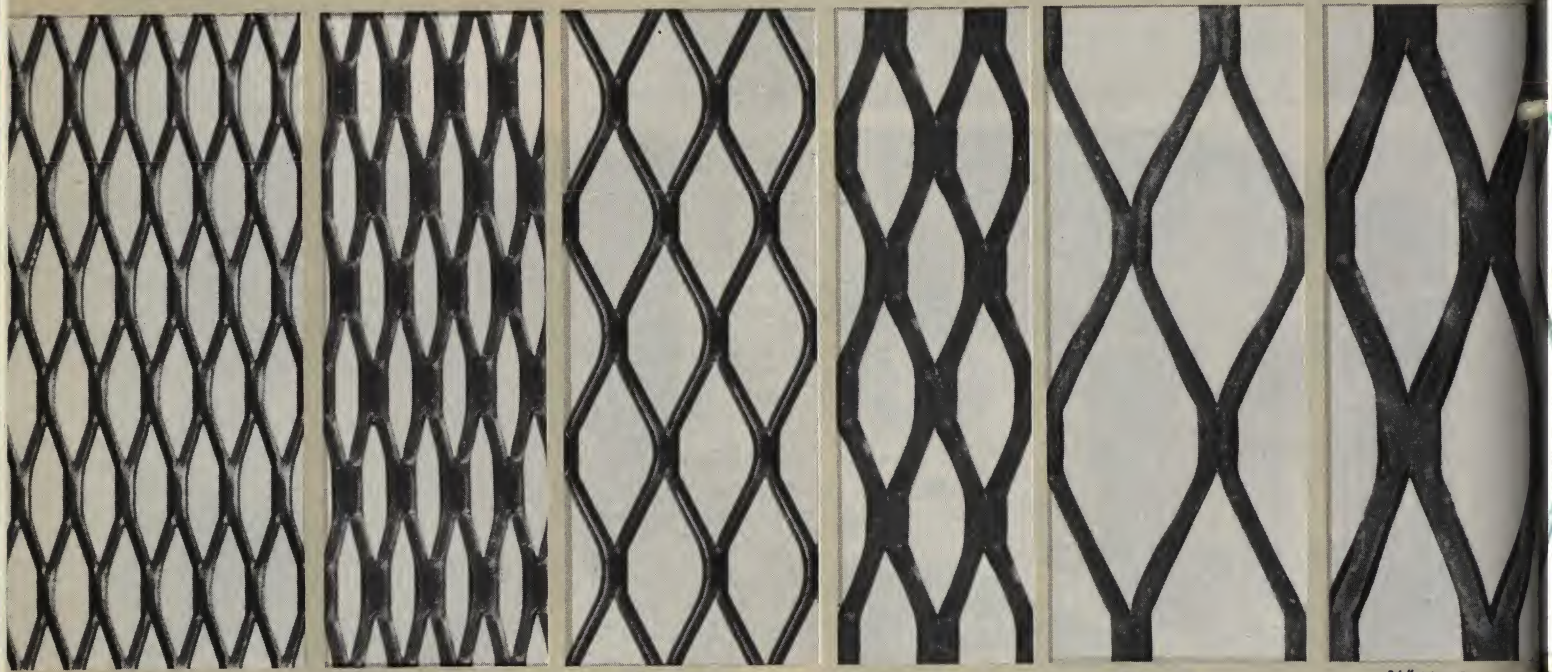
Choice of Materials. Carbon steel, stainless steel, and aluminum are available from stock. Copper, brass, bronze and other expandable metals may be had on special order.

Fabricating and Finishing

Welding—Arc, resistance or brazing methods can be used. Absence of scale on the mesh facilitates welding processes and makes a first class weld possible.

Painting—Both EXPAND-X and FLATTENED EXPAND-X Expanded Metal are shipped unpainted. The material can be painted, but should be clean and free from grease, and hung at an angle to prevent collecting of paint at bonds.

FULL SIZE



¼" No. 20 EXPAND-X | ¼" No. 18 EXPAND-X | ½" No. 18 FLAT. EXPAND-X | ½" No. 13 FLAT. EXPAND-X | ¾" No. 13 FLAT. EXPAND-X | ¾" No. 9 FLAT. EXPAND-X

*T.M. Reg. U.S. Pat. Off.

FUNCTION AND UTILITY

CARBON STEEL EXPAND-X. Carbon Steel EXPAND-X and FLATTENED EXPAND-X Expanded Metal, in addition to the inherent characteristics of solid sheet steel, combine light weight with the many other unique advantages of expanded metal over its original sheet form.

There are no rivets or welded joints except where units are joined. Strands of unflattened expanded metal are at an angle, thus distributing strain in many directions to the supporting structure and improving rigidity and bending resistance.

The large percentage of open area permits maximum passage of air and light.

The material can be readily cut into desired shapes without danger of raveled strands, and may be welded, bent and formed, drawn and flared. It is economical to apply and maintain. Various weights and sizes are available to meet varying needs.

There are a vast number of applications and uses for carbon steel EXPAND-X and FLATTENED EXPAND-X.

STAINLESS STEEL EXPAND-X. Stainless EXPAND-X and FLATTENED EXPAND-X Expanded Metal offer industry a material with the happy combination of the advantages inherent in stainless steel plus the advantages peculiar to the design of expanded metal. To engineers and product designers, this means new and improved products and equipment.

The stainless material is highly resistant to most types of corrosion and oxidation. This makes it ideal for applications in chemical, oil, textile, food processing, meat packing, dairy and beverage industries; household, surgical and marine equipment and electrical appliances.

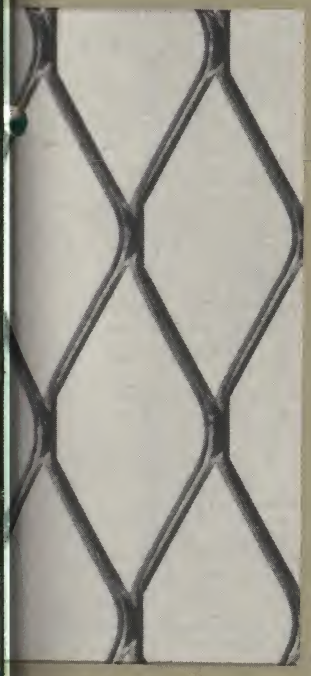
For further information on stainless EXPAND-X and FLATTENED EXPAND-X Expanded Metal and where it can be used, write for our technical pamphlet, "Stainless EXPAND-X".

ALUMINUM EXPAND-X. Aluminum EXPAND-X and FLATTENED EXPAND-X—a new material for industry, with all the advantages of aluminum, plus—lighter weight—a clean attractive design, which are added in the expanding process. Light weight—almost featherlight—with the unflattened expanded metal having many better performance properties than in its original sheet form—permits lighter weight equipment and appliances to ease work in industry and in the home.

The highly pleasing appearance of Aluminum EXPAND-X and FLATTENED EXPAND-X Expanded Metal—its clean, geometric design, its lasting, corrosion-resisting, satiny finish—suggest a multitude of uses for products of unusual beauty. Food processing and chemical industries, especially, will find many uses for this new material. Maintenance costs of the aluminum material are negligible.

Aluminum EXPAND-X and FLATTENED EXPAND-X Expanded Metal fabricate easily, can be cut without raveling and be formed or welded.

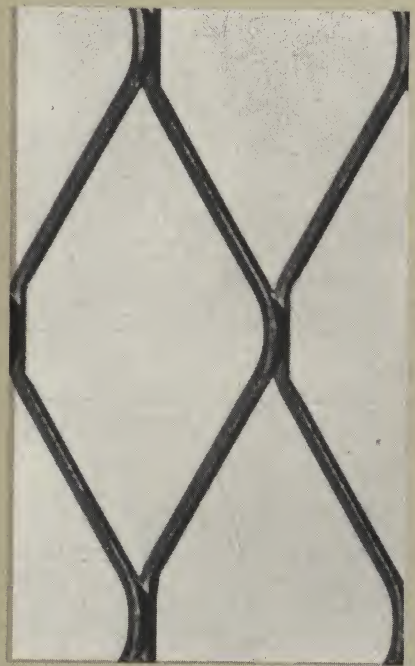
The wide variety of uses and applications of aluminum EXPAND-X and Flattened EXPAND-X includes many in the automotive, building, chemical, textile, mining, food processing and meat packing industries; electrical appliances, furniture, household, farming, photographic and sports equipment. For further information write for our technical pamphlet, "Aluminum EXPAND-X Expanded Metal."



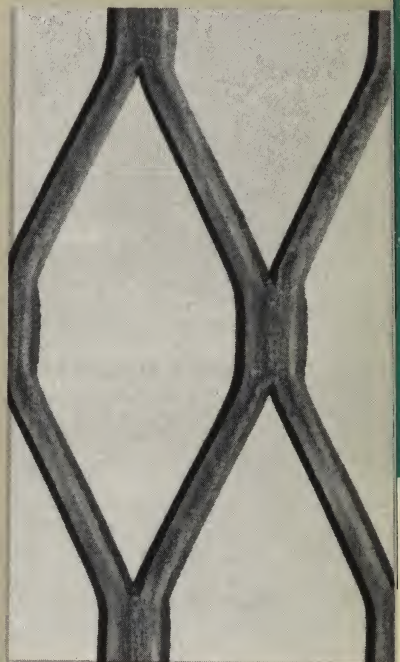
¾" No. 16
EXPAND-X



1" No. 16
EXPAND-X



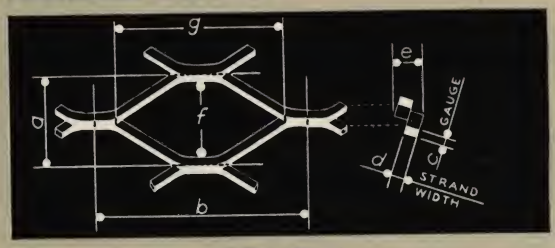
1½" No. 13
EXPAND-X



1½" No. 9
FLAT. EXPAND-X

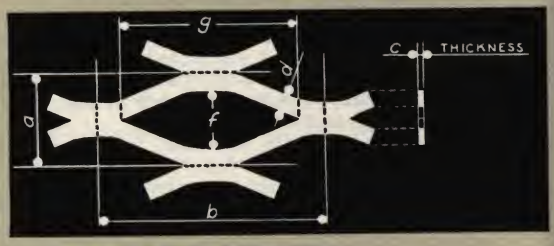
EXPAND-X
EXPANDED METAL

TECHNICAL DATA



EXPAND-X

All weights and dimensions are approximate



FLATTENED EXPAND-X

Styles Available	Wt. Lbs. C Sq. Ft.		Diamond Size a x b inches	Opening Size f x g inches	Strand c x d inches	Overall Thickness e inches	Standard Sheet Size		Per Cent Open Area	U.S. Std. Gauge Steel Used
	Black	Galv.					width	length		
Carbon Steel EXPAND-X										
¼"—No. 20	94	131	.26 x1.0	.125x .687	.036x.076	.125	4′	8′	40	20
¼"—No. 18	117	159	.26 x1.0	.125x .687	.047x.076	.125	4′	8′	40	18
½"—No. 40	40	60	.497x1.195	.406x .937	.047x.050	.110	4′	8′	83	18
½"—No. 20	43	59	.459x1.195	.375x .875	.036x.066	.134	4′	8′	71	20
½"—No. 18	70	84	.507x1.195	.375x .950	.047x.089	.161	4′ & 6′	8′ & 10′	65	18
½"—No. 16	87	104	.507x1.195	.375x .890	.059x.089	.159	4′ & 6′	8′	65	16
½"—No. 13	146	175	.503x1.2	.350x .900	.089x.098	.199	4′ & 6′6″	8′	61	13
¾"—No. 34	34	51	.865x2.0	.750x1.688	.059x.060	.129	4′	8′	85	16
¾"—No. 16	54	65	.880x2.0	.700x1.640	.059x.095	.183	4′; 6′6″	8′ & 10′; 8′	76	16
¾"—No. 13	80	93	.880x2.0	.734x1.640	.089x.095	.185	4′ & 6′	8′ & 10′	76	13
¾"—No. 10	119	133	.889x2.0	.675x1.563	.089x.141	.277	4′	8′	69	13
¾"—No. 9	180	202	.857x2.0	.600x1.45	.134x.137	.290	4′ & 6′	8′ & 10′	68	10
1″ —No. 16	47	55	1.01 x2.375	.875x1.937	.059x.095	.196	4′	8′	82	16
1½"—No. 16	40	47	1.35 x3.125	1.180x2.813	.059x.112	.210	4′	8′	85	16
1½"—No. 13	60	68	1.35 x3.125	1.200x2.688	.089x.112	.213	4′ & 6′	8′ & 10′	85	13
1½"—No. 10	79	87	1.33 x3.00	1.156x2.52	.089x.140	.248	4′ & 6′	8′ & 10′	81	13
1½"—No. 9	119	129	1.33 x3.00	1.140x2.43	.134x.141	.289	4′ & 6′	8′ & 10′	76	10
1½"—No. 6	250	273	1.33 x3.00	1.000x2.312	.198x.203	.410	6′	12′	70	6
Carbon Steel FLATTENED EXPAND-X										
¼"—No. 20	87	125	.26 x1.03	.088x .70	.031x.086	.031	4′	8′	34	20
¼"—No. 18	113	159	.26 x1.03	.088x .70	.042x.086	.042	4′	8′	34	18
½"—No. 40	39	60	.497x1.23	.371x1.00	.038x.063	.038	4′	8′	75	18
½"—No. 20	41	42	.438x1.25	.313x .938	.032x.070	.032	3′ & 4′	8′	64	20
½"—No. 18	66	88	.507x1.26	.289x1.00	.038x.109	.038	3′ & 4′	8′ & 10′	58	18
½"—No. 16	82	112	.507x1.26	.301x1.00	.050x.103	.050	3′ & 4′	8′ & 10′	60	16
½"—No. 13	138	175	.503x1.26	.259x .97	.070x.122	.070	3′ & 4′	8′	52	13
¾"—No. 34	32	51	.865x2.10	.709x1.75	.045x.078	.045	4′	8′	83	16
¾"—No. 16	51	71	.880x2.10	.650x1.75	.048x.115	.048	3′ & 4′	8′ & 10′	74	16
¾"—No. 14	68	70	.880x2.10	.642x1.75	.063x.119	.063	3′ & 4′	8′	73	14
¾"—No. 13	76	93	.880x2.10	.642x1.75	.070x.119	.070	3′ & 4′	8′ & 10′	73	13
¾"—No. 9	171	195	.857x2.10	.529x1.63	.110x.164	.110	3′ & 4′	8′ & 10′	62	10
1″ —No. 16	46	55	1.01 x2.50	.780x2.06	.048x.115	.048	3′ & 4′	8′	78	16
1½"—No. 16 (Lt.)	29	40	1.35 x3.25	1.14 x2.88	.048x.103	.048	3′ & 4′	8′	85	16
1½"—No. 16 (Hvy.)	38	44	1.35 x3.19	1.13 x2.69	.048x.123	.048	3′ & 4′	8′	85	16
1½"—No. 14	53	63	1.35 x3.28	1.07 x2.88	.063x.138	.063	3′ & 4′	8′	80	14
1½"—No. 13	57	68	1.35 x3.28	1.07 x2.88	.070x.138	.070	3′ & 4′	8′ & 10′	80	13
1½"—No. 9	113	129	1.35 x3.25	1.00 x2.62	.106x.175	.106	3′ & 4′	8′ & 10′	74	10
Stainless Steel EXPAND-X										
½"—No. 18	73	....	.475x1.20	.359x .906	.050x.082	.154	3′ & 4′	8′	65	18
½"—No. 16	91	....	.475x1.20	.359x .875	.062x.082	.161	3′ & 4′	8′	65	16
¾"—No. 18	48	....	.828x2.00	.719x1.656	.050x.096	.176	3′ & 4′	8′	77	18
¾"—No. 16	60	....	.828x2.00	.672x1.656	.062x.096	.178	3′ & 4′	8′	77	16
¾"—No. 13	91	....	.828x2.00	.672x1.563	.093x.096	.192	3′ & 4′	8′	77	13
¾"—No. 9	205	....	.828x2.00	.500x1.375	.140x.144	.294	3′ & 4′	8′	65	10
1½"—No. 16	45	....	1.333x3.00	1.180x2.813	.062x.115	.296	3′ & 4′	8′	83	16
1½"—No. 13	68	....	1.333x3.00	1.156x2.640	.093x.115	.221	3′ & 4′	8′	83	13
1½"—No. 9	137	....	1.333x3.00	1.125x2.500	.140x.154	.267	3′ & 4′	8′	77	10
Stainless Steel FLATTENED EXPAND-X										
½"—No. 18	69	....	.475x1.26	.297x1.031	.042x.093	.042	3′ & 4′	8′	61	18
½"—No. 16	86	....	.475x1.26	.297x1.031	.052x.093	.052	3′ & 4′	8′	61	16
¾"—No. 18	46	....	.828x2.10	.656x1.813	.042x1.08	.042	3′ & 4′	8′	74	18
¾"—No. 16	57	....	.828x2.10	.672x1.813	.052x.108	.052	3′ & 4′	8′	74	16
¾"—No. 13	88	....	.828x2.10	.578x1.781	.079x.108	.079	3′ & 4′	8′	74	13
¾"—No. 9	198	....	.828x2.10	.500x1.563	.119x.160	.119	3′ & 4′	8′	61	10
1½"—No. 16	43	....	1.333x3.15	1.031x2.875	.052x.124	.052	3′ & 4′	8′	81	16
1½"—No. 13	66	....	1.333x3.15	1.016x2.525	.079x.124	.079	3′ & 4′	8′	81	13
1½"—No. 9	133	....	1.333x3.15	.906x2.658	.119x.165	.119	3′ & 4′	8′	75	10

NOTE—All dimensions and weights are approximate

Styles Available	Wt. Lbs. C Sq. Ft.	Diamond Size a x b inches	Opening Size f x g inches	Strand c x d inches	Overall Thickness e inches	Standard Sheet Size		Per Cent Open Area	B & S Gauge No.	Equivalent Thickness in Steel (USS Gauge No.)
						width	length			
Aluminum EXPAND-X										
½"—No. .051	27	.507x1.195	.375x .950	.051x.089	.152	3' & 4'	8'	65	16	18
½"—No. .081	44	.507x1.195	.375x .890	.081x.089	.178	3' & 4'	8'	65	12	14
¾"—No. .051	17	.880x2.000	.700x1.640	.051x.095	.192	3' & 4'	8'	78	16	18
¾"—No. .081 (Lt.)	32	.880x2.000	.700x1.640	.081x.095	.211	3' & 4'	8'	78	12	14
¾"—No. .081 (Hvy.)	41	.880x2.000	.734x1.640	.081x.141	.270	3' & 4'	8'	68	12	14
¾"—No. .125	65	.889x2.000	.675x1.563	.125x.141	.292	3' & 4'	8'	68	8	11
1½"—No. .081	22	1.350x3.000	1.200x2.563	.081x.112	.226	3' & 4'	8'	83	12	14
1½"—No. .125	43	1.330x3.000	1.140x2.500	.125x.141	.269	3' & 4'	8'	79	8	11
Aluminum FLATTENED EXPAND-X										
½"—No. .051	25	.509x1.250	.328x1.000	.045x.091	.045	3' & 4'	8'	64	16	18
½"—No. .081	41	.525x1.271	.297x1.000	.067x.103	.067	3' & 4'	8'	59	12	14
¾"—No. .051	16	.893x2.125	.625x1.750	.040x.104	.040	3' & 4'	8'	76	16	18
¾"—No. .081 (Lt.)	30	.893x2.125	.635x1.750	.070x.120	.070	3' & 4'	8'	72	12	14
¾"—No. .081 (Hvy.)	38	.893x2.125	.547x1.750	.070x.165	.070	3' & 4'	8'	63	12	14
¾"—No. .125	61	.906x2.156	.563x1.750	.095x.163	.095	3' & 4'	8'	63	8	11
1½"—No. .081	20	1.375x3.125	1.094x2.625	.055x.144	.055	3' & 4'	8'	77	12	14
1½"—No. .125	40	1.313x3.125	.938x2.625	.080x.194	.080	3' & 4'	8'	70	8	11

AVAILABLE METALS

CARBON STEEL

Units are formed from soft open hearth steel sheets.
Finishes—Carbon steel EXPAND-X and Flattened EXPAND-X Expanded Metal is shipped unpainted and without special finishes. EXPAND-X will take most any type of coating. Nickel, chrome, copper, or vacuum plating; porcelain enameling or a good paint job can be given to this material because it has a smooth surface and is readily adapted to high grade finishing. Both EXPAND-X and Flattened EXPAND-X can be rubber coated either by the anodic process or by dipping.

STAINLESS STEEL

Units are formed from alloy Type 304, 18-8 (18 chrome, 8 nickel) austenitic stainless sheets. Certain other alloy types of expanded stainless steel can be furnished upon request.
Finish—Shipped unbuffed and unpolished.

ALUMINUM

Units are formed from aluminum alloy type 3003-H14. While other alloy types may be adaptable to expanding, 3003-H14 was found to be best suited to the expanding operation, and was also chosen because of its wide utility, high corrosion resistance, adequate strength, and low cost. Units formed from this alloy can be either anodized or porcelain enameled.
Finish—Shipped unbuffed and unpolished.

ORDERING INFORMATION

Style—The style numbers designated the various meshes. The first figure is the nominal width of the diamond. The second figure identifies the style. In some cases, this figure corresponds with the gauge of the sheet before expanding. Specify regular or flattened sheets.

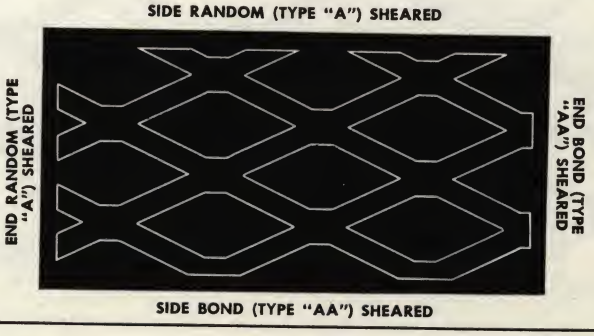
Specifying Sheet Size

Width—The width of the sheet is measured the *short way of the diamond* (SWD).
Length—The length of the sheet is measured the *long way of the diamond* (LWD).
When ordering expanded metal specify "SWD" and "LWD" after the width and length of the sheet. Give width of the sheet first.
Example: A sheet 36" the short way of the diamond by 96" the long way of the diamond should be written.—
36" SWD x 96" LWD
(Note SWD dimension is given first)

TYPES OF SHEARING AVAILABLE

SIDE SHEARING—(Parallel to long dimension of diamond.)
Random (Type "A") Shearing—Cut to width (SWD) specified, with tolerance of plus or minus 1/16". This type of shearing will usually leave jagged edges.
Bond (Type "AA") Shearing—Cut on center line of first bond *over* specified width. Tolerance, minus 0, plus ½ diamond.
Limitations: Bond shearing cannot be furnished on meshes smaller than ½" nor on ½" No. 40 or ¾" No. 34 EXPAND-X or Flattened EXPAND-X.
Sizing—(Flattened EXPAND-X only). Sizing is an operation that provides Bond shearing, and stretching to a specified width (SWD). Limited to ¾" and 1½" meshes in carbon steel only, not heavier than No. 13 gauge. All orders for sized Flattened EXPAND-X subject to our ability to produce. Sizing tolerance is plus or minus 1/16".

END SHEARING—(Parallel to short dimension of diamond.)
Random (Type "A") Shearing—Cut to length (LWD) specified, with tolerance of plus or minus 1/16". This type of shearing will usually leave prongs at both ends.
Bond (Type "A") Shearing—Cut to length (LWD) specified, with tolerance of plus or minus 1/16". One end to be cut on center line of bond.
Exception: When orders specify bond cutting *both ends*, material will be sheared to nearest bond over specified dimension. Tolerance will be minus 0, plus ½ diamond.
SQUARENESS—Maximum "out of squareness" of all sheared material (when all four sides are sheared), shall not exceed 1/16" per foot of length.



DECORATIVE EXPANDED METALS

DESCRIPTION

The six decorative patterns of USG Expanded Metal, ARMORWEAVE, FESTOON, CATHEDRAL, WAVELENGTH, RONDO and MIN-X, offer the Architect and Designer countless new design possibilities. These attractive, functional and economical materials are produced in both aluminum and carbon steel.

In manufacture, sheets of metal are slit and cold-drawn into continuous mesh patterns. The strands and bonds of the resulting meshes come to rest at a sharp angle to the original sheet. This makes the expanded mesh more rigid than a solid sheet and gives it a three-dimensional effect which adds texture. USG Expanded Metal in this form is called "Type R". For applications where a smooth surface is desired, a flattened form of each pattern except ARMORWEAVE and 1" CATHEDRAL is produced by cold-rolling the mesh after expansion. Flattened meshes are designated as "Type F".

NOTE REGARDING POSITIONING: You may wish to rotate the expanded metal 90° or 180° from the positions shown in the adjacent photographs. This will achieve varying effects particularly with styles such as FESTOON, WAVELENGTH *and* CATHEDRAL *and positioning of the mesh should be indicated on your drawings.*

ARMORWEAVE, a sturdy, massive, handsome mesh pattern, is produced in ½", 1½" and 4" styles to adapt to varying proportion requirements. Its wide-offset strands and bonds give ARMORWEAVE several unique and valuable properties. Because of them, ARMORWEAVE has excellent shading and concealing power, pleasing depth and texture, and added strength and rigidity. Yet this mesh retains a high percentage of open area for passage of air and usable light. These reasons make ARMORWEAVE an ideal material to use for ventilation panels and grilles in appliances and other consumer goods.

ARMORWEAVE has many potential architectural applications too. Its properties make it a practical, and economical, material to specify for exterior facias and sunshades. ARMORWEAVE placed vertically gives 100% shading at a 45° profile angle. In many cases, initial savings on air-conditioning equipment will more than pay for the entire ARMORWEAVE sunshading installation.

FESTOON, a light, airy mesh pattern with a maximum percentage of open area is also produced in ½", 1½" and 4" styles. Combined with its attractive appearance, these characteristics make it an excellent material to specify for space dividers, decorative grilles, railing guards, etc.

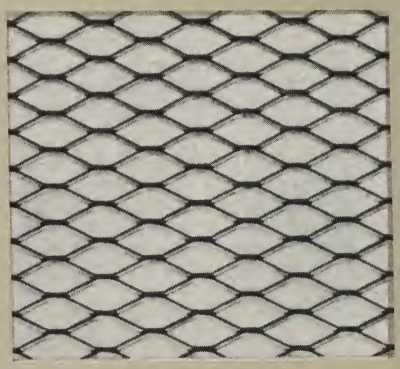
CATHEDRAL, with its long, thin modern lines, may be placed as shown or rotated 90° to provide a horizontal or vertical accent.

MIN-X, a miniature mesh, is produced in five strand widths to give it a wide range of concealing power. This light-weight mesh is perfect for many grille and ornamental trim applications.

WAVELENGTH & RONDO. The unique and distinctive appearance of these two meshes warrants their consideration for many uses; particularly adaptable as accent points and decorative grilles and railing guards.



3/16" MIN-X Type F



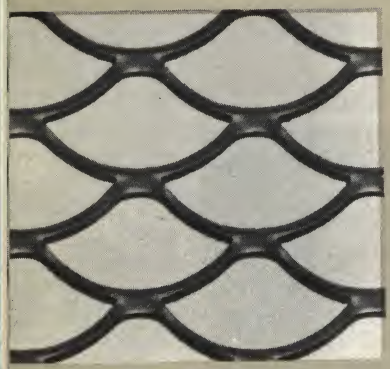
3/16" MIN-X Type R



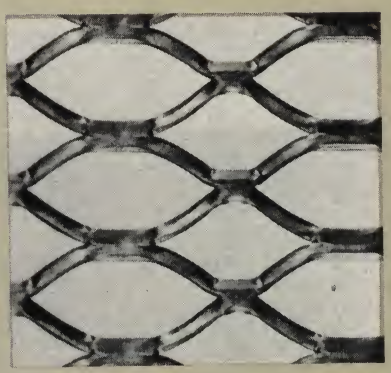
3/16" WAVELENGTH Type F



3/16" WAVELENGTH Type R



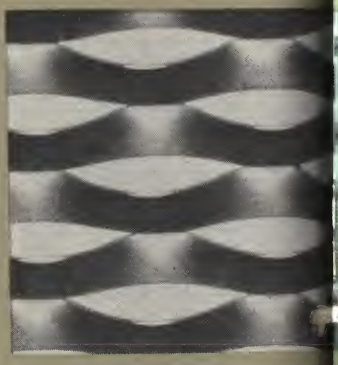
½" FESTOON Type R



½" RONDO Type R



½" WAVELENGTH Type R



½" ARMORWEAVE Type R

FUNCTION & UTILITY

Practical, as Well as Beautiful—USG Expanded Metals are lighter, yet more rigid than a solid sheet. They will not ravel when cut, are readily fabricated with standard equipment and techniques, may be framed with standard sections and attached by welding, bolting or riveting.

Typical edging and framing materials and details are shown on Pages 14 and 15.

Finishes Beautifully—The potential of USG Expanded Metal for architectural use is enhanced by the variety of finishes which may be applied to provide appropriate color and also added corrosion resistance. See table of common finishing techniques on page 13.

Provides Opportunity for Design Creativity—The USG Decorative Expanded Metals provide a design motif about which the individual can exercise his personal creativity.

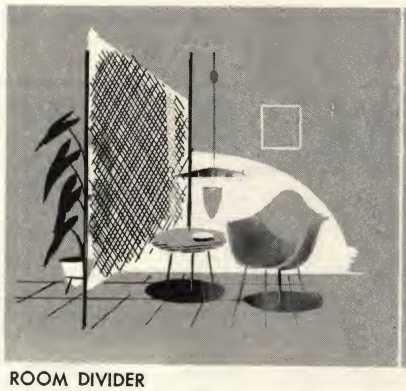
Appropriate Visibility Through the Mesh—A wide range of translucency is afforded by the various mesh designs, yet all retain a high percentage of open area for passage of light and air.

RECOMMENDATIONS & LIMITATIONS

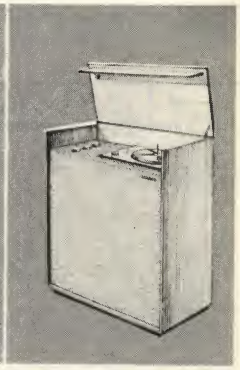
If an aluminum mesh is attached to a steel frame, a gasket of rubber or other non-conductor should be used to prevent galvanic corrosion.

The mesh should be rigidly attached to the framing at approximately 6″ centers.

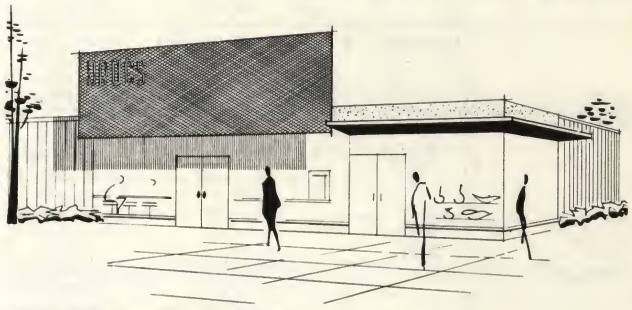
Bending decorative expanded metal on a very short radius, particularly when repeated, may cause fracturing.



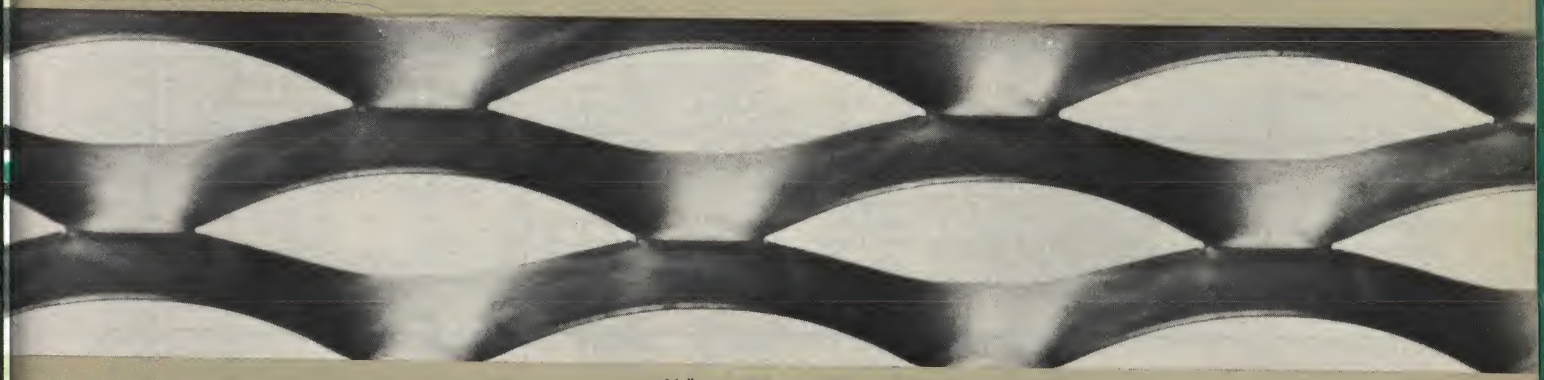
ROOM DIVIDER



HI FI GRILLE



SUNSHADE & DECORATIVE FRONT



1½″ ARMORWEAVE Type R



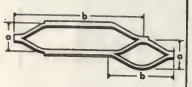
½″ CATHEDRAL Type R

TECHNICAL DATA (ALL DIMENSIONS AND WEIGHTS ARE APPROXIMATE.) "a" = SWO (Short Way of the Opening.) "b" = LWO (Long Way of the Opening.)

Pattern	Material	Reg. Flat.	Style Designation	Design Size a x b (inches)	Opening Size (inches)	Strand Size c x d (inches)	Overall Thickness e (inches)	Standard Sheet Size		Per Cent Open Area	Wt.—lbs. Per 100 Sq. Ft.
								Width (SWO)	Length (LWO)		
ARMORWEAVE	Carbon Steel	R	½" #20	.6 x1.20	.410x .938	.036x.200	.219	4′	8′	34	100
			½" #18	.6 x1.20	.375x .938	.048x.200	.219	4′	8′	34	133
			½" #16	.6 x1.20	.375x .938	.060x.200	.219	4′	8′	34	166
			*1½" #20 (L)	1.31 x3.00	.69 x2.375	.036x.500	.500	4′	8′	25	113
			*1½" #20 (H)	1.50 x3.00	.625x2.375	.036x.675	.625	4′	8′	10	135
			1½" #18 (L)	1.38 x3.00	.75 x2.375	.048x.500	.563	4′ & 6′; 6′	8′; 6′3″	27	146
			1½" #18 (H)	1.50 x3.00	.625x2.375	.048x.675	.625	4′ & 6′; 6′	8′; 6′3″	10	180
			*1½" #16 (L)	1.38 x3.00	.75 x2.313	.060x.500	.625	4′	8′	27	183
			*1½" #16 (H)	1.50 x3.00	.568x2.313	.060x.675	.750	4′	8′	10	225
			*4" #16	3.44 x8.00	1.625x6.25	.059x1.25	1.187	4′	8′ & 10′	30	182
			*4" #13	3.44 x8.00	1.625x6.25	.089x1.25	1.187	4′	8′ & 10′	30	273
	Aluminum	R	½" .051	.6 x1.20	.375x .938	.051x.200	.219	4′	8′	34	48
			½" .081	.6 x1.20	.350x .938	.081x.200	.219	4′	8′	34	77
			1½" .051 (L)	1.270x3.00	.563x2.125	.051x.500	.500	4′ & 6′; 6′	8′; 6′3″	21	59
			1½" .051 (H)	1.50 x3.00	.625x2.125	.051x.675	.625	4′ & 6′; 6′	8′; 6′3″	10	65
			1½" .081 (L)	1.297x3.00	.563x2.125	.081x.500	.625	4′ & 6′; 6′	8′; 6′3″	23	89
			1½" .081 (H)	1.50 x3.00	.438x2.125	.081x.675	.750	4′ & 6′; 6′	8′; 6′3″	10	104
			*4" .081	3.0 x8.00	1.25 x6.00	.081x1.25	1.187	4′	8′ & 10′	20	96
FESTOON	Carbon Steel	R	½" #20	.625x1.20	.507x .938	.036x.090	.175	4′	8′	71	43
			½" #18	.625x1.20	.500x .938	.048x.090	.175	4′	8′	71	58
			*½" #16	.625x1.20	.500x .938	.060x.090	.175	4′	8′	71	72
			*1½" #16	1.50 x3.00	1.375x2.625	.060x.112	.217	4′	8′	85	37
			*1½" #13	1.50 x3.00	1.313x2.625	.089x.112	.236	4′	8′	81	56
			*1½" #9	1.50 x3.00	1.25 x2.50	.135x.141	.292	4′	8′	81	110
			*4" #9	3.75 x8.00	3.50 x7.25	.134x.230	.500	4′	8′ & 10′	90	68
			*4" #4	3.75 x8.00	3.375x7.0	.223x.230	.500	4′	8′ & 10′	88	114
		F	½" #20	.688x1.20	.550x1.00	.030x.100	.030	8′	4′	64	39
			½" #18	.688x1.20	.540x1.00	.040x.100	.040	8′	4′	64	52
			*½" #16	.688x1.20	.540x1.00	.051x.100	.051	8′	4′	64	65
			*1½" #16	1.688x3.00	1.438x2.625	.052x.125	.052	8′	4′	79	34
			*1½" #13	1.688x3.00	1.438x2.625	.071x.140	.071	8′	4′	81	51
			*1½" #9	1.75 x3.00	1.25 x2.50	.110x.240	.110	8′	4′	75	101
Typical Type-R Bond Cross Section	Aluminum	R	½" .051	.625x1.20	.507x .938	.051x.090	.175	4′	8′	71	21
			*½" .081	.625x1.20	.467x .938	.081x.090	.175	4′	8′	71	33
			*1½" .081	1.375x3.00	1.25 x2.625	.081x.112	.250	4′	8′	83	19
			*1½" .125	1.50 x3.00	1.25 x2.563	.125x.141	.250	4′	8′	81	34
			*4" .250	3.375x8.00	3.0 x6.75	.250x.356	.625	4′	8′ & 10′	82	76
		F	½" .051	.688x1.20	.550x1.00	.043x.100	.043	8′	4′	64	19
			*½" .081	.688x1.20	.580x1.00	.069x.100	.069	8′	4′	64	30
			*1½" .081	1.75 x3.00	1.375x2.625	.065x.160	.065	8′	4′	74	17
			*1½" .125	1.75 x3.00	1.375x2.563	.100x.190	.100	8′	4′	70	31
RONDO	Carbon Steel	R	½" #20	.520x1.195	.469x .938	.036x.089	.163	4′	8′	65	25
			½" #18	.520x1.195	.438x .938	.048x.089	.163	4′	8′	65	71
			*½" #16	.520x1.195	.438x .938	.060x.089	.163	4′	8′	65	86
		F	½" #20	.625x1.195	.500x .938	.030x.100	.030	8′	4′	59	47
			½" #18	.625x1.195	.438x .938	.040x.100	.040	8′	4′	59	64
			*½" #16	.625x1.195	.469x .938	.051x.100	.051	8′	4′	59	78
	Aluminum	R	½" .051	.520x1.195	.438x .938	.051x.089	.163	4′	8′	65	25
			*½" .081	.520x1.195	.408x .938	.081x.089	.163	4′	8′	65	40
		F	½" .051	.625x1.195	.500x .938	.043x.100	.043	8′	4′	59	23
			*½" .081	.625x1.195	.475x .938	.069x.100	.069	8′	4′	59	36
WAVELENGTH	Carbon Steel	R	*½" #20	.555x1.20	.468x .938	.036x.103	.171	4′	8′	63	55
			½" #18	.555x1.20	.438x .938	.048x.103	.171	4′	8′	63	74
			*½" #16	.555x1.20	.438x .938	.060x.103	.171	4′	8′	63	92
			*3/16" #24	.200x .500	.094x .344	.050x.024	.080	3′	8′	50	50
			*3/16" #22	.200x .500	.094x .344	.050x.030	.088	3′	8′	50	62
		F	*½" #20	.625x1.20	.500x .938	.030x.112	.112	8′	4′	57	50
			½" #18	.625x1.20	.375x .938	.040x.112	.112	8′	4′	57	67
			*½" #16	.625x1.20	.375x .938	.051x.112	.112	8′	4′	57	83
			*3/16" #24	.200x .525	.090x .375	.056x.022	.022	3′	8′	47	45
			*3/16" #22	.200x .525	.090x .375	.056x.026	.026	3′	8′	47	56
	Aluminum	R	½" .051	.555x1.20	.438x .938	.051x.103	.171	4′	8′	63	27
			*½" .081	.555x1.20	.410x .938	.081x.103	.171	4′	8′	63	43
		F	½" .051	.625x1.20	.500x .938	.043x.112	.112	8′	4′	57	25
			*½" .081	.625x1.20	.475x .938	.068x.112	.112	8′	4′	57	39
MIN-X	Carbon Steel	R	*3/16" #24,.034 Strand	.188x .500	.156x .344	.024x.034	.065	3′	8′	71	36
			3/16" #22,.034 Strand	.188x .500	.156x .344	.030x.034	.070	3′	8′	71	45
		F	*3/16" #24,.034 Strand	.188x .525	.125x .390	.022x.038	.022	3′	8′	65	35
			*3/16" #22,.034 Strand	.188x .525	.130x .390	.028x.038	.028	3′	8′	65	43
			MIN-X is produced in .050″, .060″, .070″ and .080″ strand widths on special order.								

*Produced on special order. (H) = Heavy Strand (L) = Light Strand

TECHNICAL DATA—continued

Pattern	Material	Reg. Flat.	Style Designation	Design Size a x b (inches) SHORT	Design Size a x b (inches) LONG	Opening Size (inches) SHORT	Opening Size (inches) LONG	Strand Size c x d (inches)	Overall Thickness e (inches)	Standard Sheet Size Width (SWO)	Standard Sheet Size Length (LWO)	Per Cent Open Area	Wt.—lbs. Per 100 Sq. Ft.
CATHEDRAL 	Carbon Steel	R	½″ #20	.458x1.0	.458x2.0	.344x.75	.344x1.75	.036x.089	.175	4′	8′	61	58
			½″ #18	.458x1.0	.458x2.0	.344x.75	.344x1.75	.048x.089	.175	4′	8′	61	77
			½″ #16	.458x1.0	.458x2.0	.344x.75	.344x1.75	.060x.089	.175	4′	8′	61	97
			*1″ #16	1.0x2.0	1.0x4.0	.750x1.5	.750x3.5	.0625x.200	.343	4′	8′	75	105
		F	½″ #20	.534x1.0	.534x2.0	.344x.75	.344x1.75	.033x.092	.033	8′	4′	58	53
			½″ #18	.540x1.0	.540x2.0	.344x.75	.344x1.75	.044x.092	.044	8′	4′	58	70
			½″ #16	.562x1.0	.562x2.0	.344x.75	.344x1.75	.052x.092	.052	8′	4′	58	89
	Aluminum	R	½″ .051	.458x1.0	.458x2.0	.344x.75	.344x1.75	.051x.089	.175	4′	8′	61	28
			½″ .081	.458x1.0	.458x2.0	.344x.75	.344x1.75	.081x.089	.175	4′	8′	61	45
			*1″ .081	1.0x2.0	1.0x4.0	.750x1.5	.750x3.5	.081x.200	.343	4′	8′	75	46
		F	½″ .051	.562x1.0	.562x2.0	.344x.75	.344x1.75	.046x.095	.046	8′	4′	58	26
			½″ .081	.562x1.0	.562x2.0	.313x.75	.313x1.75	.068x.100	.068	8′	4′	58	41

*Produced on special order.

AVAILABLE METALS

CARBON STEEL units are formed from soft open hearth steel sheets.

Finishes—Carbon steel decorative expanded metal Type R and Type F is shipped unpainted and without special finishes. Decorative expanded metal will take most any type of coating. Nickel, chrome, copper, or vacuum plating; porcelain enameling; or a good paint job can be given to this material because it has a smooth surface and is readily adapted to high grade finishing. Both Type F and Type R decorative expanded metals can be rubber coated either by the anodic process or by dipping.

ALUMINUM units are formed from aluminum alloy type 3003-H14. While other alloy types may be adaptable to expanding, 3003-H14 was found to be best suited to the expanding operation, and was also chosen because of its wide utility, high corrosion resistance, adequate strength, and low cost. Units formed from this alloy can be either anodized or porcelain enameled.

Finish—Shipped unbuffed and unpolished.

ORDERING INFORMATION

Terminology

Type R. Regular decorative expanded metal

Type F. Cross-rolled Flattened expanded decorative metal

Sheet Sizes

Type R: 4′ Short Way Opening (SWO) x 8′ Long Way Opening (LWO)

Type F: 9′ Short Way Opening (SWO) x 4′ Long Way Opening (LWO) (See below)

Type F is shipped in untrimmed sheets unless otherwise specified. Customer will be charge for 8′ x 4′ area but will receive oversize sheets with up to 1″ camber. (Length of Type F untrimmed sheets; up to 4″ longer in 8′ dimensions.)

Where specifically requested, Type F may be furnished Random (Type "A") sheared to 8′ x 4′. (Random shearing usually leaves prongs along both 8′ sides of the sheet.)

TYPES OF SHEARING AVAILABLE

(Refer to shearing diagram page 7)

SIDE SHEARING—(Parallel to long dimension of opening.)

Random (Type "A") Shearing—Cut to width (SWO) specified, with tolerance of plus or minus 1/16″. This type of shearing will usually leave jagged edges.

Bond (Type "AA") Shearing—Cut on center line of first bond over specified width. Tolerance, minus 0, plus ½ diamond.

Limitations: AA shearing cannot be furnished on Type F decorative expanded metal.

END SHEARING—(Parallel to short dimension of opening.)

Random (Type "A") Shearing—Cut to length (LWO) specified, with tolerance of plus or minus 1/16″. This type of shearing will usually leave prongs at both ends.

Bond (Type "AA") Shearing—Cut to length (LWO) specified, with tolerance of plus or minus 1/16″. One end to be cut on center line of bond. Available on Type R only.

SQUARENESS—Maximum "out of squareness" of all sheared material (when all four sides are sheared), shall not exceed 1/16″ per foot of length.

ARCHITECTURAL SPECIFICATION:

SCOPE: The Contractor shall supply all labor, material and equipment to install the specified pattern of USG Expanded Metal in all areas where shown on the drawings.

MATERIALS: Expanded Metal pattern used shall be (specify by complete style designation). (Example: 1½″ .081 USG Aluminum ARMORWEAVE Expanded Metal—Type "R".) The Contractor should be advised if finish on the Expanded Metal is required, i.e., anodized, etc.

SUNSHADING

Sunshading of glass areas has become increasingly important to architects because of its effect on air conditioning costs. Today's buildings are being designed with as much as three times the glass area of those in the 1920's. Tripling of the transparent area approximately doubles the cooling load on air conditioning equipment.

One of the ways of controlling and reducing air conditioning loads is with an exterior shading device which acts as a barrier to the heat of the sun's rays. Because of its wide strand ARMORWEAVE Decorative Expanded Metal is ideally suited for sunshading as a horizontal overhang, vertical screen or entire building facia.

Shading Characteristics Of Armorweave

In the summer, the sun is higher in the sky than it is in winter. A well-designed shading device will keep out the heat of the summer sun and yet not interrupt the welcome heat of the winter sun.

ARMORWEAVE provides protection from the summer sun's rays at peak conditions and throughout the cooling season. It also allows sunlight to pass, during the winter months.

The several styles of ARMORWEAVE available, give architects a choice of materials to meet various sunshading requirements. ½" and 1½" (L) ARMORWEAVE placed vertically give 100% shading at a 45° profile angle. For more critical sunshading requirements, 1½" (H) ARMORWEAVE—a heavier strand material created especially for use as a sunshade—gives 100% shading at a 36° profile angle.

The table below shows shading percentages of ARMORWEAVE placed vertically for various profile angles of the sun. The profile angle defines many positions of the sun (see definition below) and, therefore, has been chosen as a reference.
(The slope of the bond in the ARMORWEAVE is down and toward the sun, to provide maximum shading and these results.)

Shading

Percent Shading—Armorweave	Profile Angle—Degrees						
	0	10	20	30	36	40	45
½" and 1½" (L) Styles	63	71	79	87	—	96	100
1½" (H) Styles	73	81	88	95	100	100	100

(L)—Light Strands (H) Heavy Strands

PROFILE ANGLE—The angle through which a horizontal plane must be rotated about a horizontal axis located in the plane of the ARMORWEAVE *Expanded Metal in order to include the position of the sun. The profile angle, sometimes called the shadow angle, is used on sectional drawings to calculate the positions and dimensions of shading devices.*

Advantages Of Armorweave As A Sunshade

ARMORWEAVE is an efficient and practical "sunshading" material. This versatile expanded metal shuts out unwanted glare—and heat—by shading the openings in wall areas, yet permits passage of needed light, as well as air. Screening out heat increases comfort indoors, substantially lowers air conditioning costs. While cutting down on the heat of the summer sun, it does not minimize the warmth of the winter sun.

ARMORWEAVE used as a sunshade gives nearly 180° of horizontal outlook and still affords desirable privacy from the stares of passersby to those inside the building.

Architects can create their own designs and effects with this expanded metal, as it can be adapted to most modules. It is right in line with the trend to decorative grillwork. Easily fabricated to standard lightweight steel or aluminum framing sections, ARMORWEAVE with ordinary proper attachments, is sufficiently strong to perform satisfactorily under the severest wind conditions.



BEFORE Remodeling



AFTER Remodeling with USG Armorweave Expanded Metal

ARMORWEAVE is all in one piece and has no moving parts to rely upon for effectiveness. It is relatively maintenance free when finished with porcelain enamel, anodized or plastic coatings for full weather protection.

*A technical pamphlet entitled "*ARMORWEAVE *for Sunshading" is available from U.S.G. Sales Offices should more information on this subject be required.*

WIND LOAD TESTS ON ARMORWEAVE

In August 1958, wind tunnel tests of ARMORWEAVE expanded metal panels were conducted by the University of Wichita, Department of Engineering Research, Wichita, Kansas. The tests were conducted on 4' x 4' panels of ½"—18 and 1½"—18 carbon steel ARMORWEAVE.

The results of these tests showed that, with ordinary proper attachments, 1½" –18 ARMORWEAVE when used on the exterior of buildings will perform satisfactorily under the most severe wind conditions. Furthermore, vibrations noticed during the tests were inconsequential and would not cause fatigue of the ARMORWEAVE nor a gross increase in the stress due to resonance.

Comparison With Flat Plate

The tests showed the normal load on 1½"—18 ARMORWEAVE is no greater than 55% of the normal load on a solid flat plate. The tests also indicated the normal load on ½"—18 ARMORWEAVE is equal to the 1½" style.

Because of the airfoil design of ARMORWEAVE, similar to an upside down airplane wing, a downward force results from a wind load condition. This downward force varies from 7.7 lb. per sq. ft. (of ARMORWEAVE) for a 71 mph. wind, to 20.0 lb. per sq. ft. for a 112 mph. wind.

The small numerical value of the side force makes it negligible.

For more specific information on the wind loading of ARMORWEAVE, contact the U.S.G. Sales Office and ask for the technical pamphlet entitled "Data and Application of the Wichita Wind Load Tests".

The background design is a full size projection of 4" ARMORWEAVE.

FINISHES

The increasing use of USG Expanded Metals in architecture, interior decoration and product design is due in part to its adaptability to metal finishing processes which add appropriate color and extra corrosion resistance to the native attractiveness of the meshes.

USG Expanded Metals are regularly produced by expanding sheets of aluminum alloy 3003 H-14 or mild open-hearth scale free, low carbon steel, or type 304 stainless steel. Most finishes, adaptable to these metals can be applied to their expanded form.

Anodized Finishes

Aluminum owes its corrosion resistance to a natural oxide coating which protects the metal. Alloy 3003 used in USG Aluminum Expanded Metal is one of the most corrosion resistant commercial alloys. However, since aluminum may weather on long exposure, and is subject to attack by certain combinations of sea air, high humidity and industrially contaminated atmospheres, protective surface treatments are often specified.

The most common surface treatments for aluminum are the anodizing processes in which an added oxide coating is formed electrochemically on the metal. This anodic coating is applied by finishers located throughout the country.

Anodic coatings usually decorate as well as protect. The coating is minutely porous when originally formed and may be colored by various dyes and pigments. Subsequent treatment closes the pores, and the color and coating become an integral part of the metal.

The cost and protection afforded by anodic coatings depends largely on their thickness. An .00025″ coating is recommended for interior use where minimum abrasion resistance is needed. An .0004″ coating is used for interior or maintained exterior applications under medium abrasion conditions. An .0008″ coating is recommended for exterior use and has high abrasion resistance.

Alloy 3003 takes anodic films with a permanence and color match within standard commercial limits. However, variations in the alloy and the anodizer's process will effect both permanence and color match.

The Aluminum Company of America has developed a carefully controlled anodizing process, Alcoa—Architectural Color Finish, specifically for unmaintained exterior aluminum. Where all phases of the recommended procedure are followed, this finishing process is designed to give increased weather resistance, a high degree of color permanency and excellent color match.

Alcoa Architectural Color Finishes may be applied only to "Anoclad" or equivalent sheets. These sheets are rolled with a thin clad surface very carefully controlled and tested as to alloying constituents and impurities. The composition of this surface cladding is varied to achieve particular effects. Expanding exposes an edge of base alloy where the clad sheet is cut in the expanding operation. *This may* produce a slight two-tone effect after finishing, which we believe is attractive.

Porcelain Enamel Finishes

Porcelain enamel offers the architect or designer an unlimited variety of colors obtainable with mineral oxides. The colors are permanent and will not fade, peel or deteriorate with age. Building exteriors have long been finished in porcelain enamel because it will successfully withstand severe weather conditions of all kinds.

Porcelain enamel is unaffected by common acid or alcohol found in the home. The glass-like surface of porcelain enamel means it is easily cleaned; resistant to severe abrasion and fire resistant.

Porcelain enamel finishes have a tendency to flake or spall off when they are hit with a hammer or receive a sharp impact. All fabrication such as cutting, drilling, welding or forming of expanded metal panels should be completed before porcelain enameling.

Porcelain enamel finishes can be applied to standard stock sheets of USG Expanded Metal by enamelers located throughout the country. The steel and aluminum alloys used in making USG Expanded Metal have been found by trial to be compatible to porcelain enameling. Contrary to common belief, the porcelain enamel can be applied to completely coat the strands and bonds of the expanded metal, including the sharp corners.

Painting, Plating, Enameling And Plastic Finishes

All USG Expanded Metals are produced from scale-free metal and thus do not present special problems to finishers. Painting is best accomplished with spray or deep nap roller, since the edges and corners of the mesh may be injurious to brushes. The meshes readily adapt to standard methods of applying hot-dip galvanize, electro-plate, and baked enamel finishes. Plastic finishes have been applied successfully by dipping, spraying and surface cladding prior to sheet expansion.

Cleaning

Provision should always be made to clean USG Expanded Metal prior to finishing; and most finishers include this as a standard procedure. The carbon steel styles are shipped lightly oiled by us. A solvent or acid dip followed by water rinsing is a common cleaning method. For smaller projects the expanded metal may be wiped clean with a solvent.

The aluminum styles may also have oily surface deposits picked up during rolling of the sheets by the aluminum producer or from our expanding machines. Because of possible dust accumulation, it is advisable to clean aluminum meshes which are to be erected without additional finishing. Washing with a mild soap, detergent or non-etching chemical cleaner followed by thorough rinsing and drying, or the use of wax base and non-wax base polish cleaners, are two methods recommended by aluminum producers.

FINISHES aluminum

ALLOY	TYPE	EXTERIOR	INTERIOR	REMARKS
3003H-14	Unfinished	X	X	Specify surface cleaning prior to erection.
3003H-14	Painted	X	X	Specify surface cleaning prior to painting.
3003H-14	Interior Anodized		X	Resists mild abrasion. Colors generally available natural, red, blue, green, yellow, gold, silver, copper, brass and black.
3003H-14	Exterior Anodized	X	X	Higher abrasion resistance.
3003H-14	Heavy Duty Anodized	X	X	Highest abrasion resistance and resistance to attack by combinations of sea air, humidity and industrially contaminated atmospheres.
3003H-14	Porcelain Enameled	X	X	
6061-0	Porcelain Enameled	X	X	Better structural properties after firing. This alloy expanded on special order only.
	carbon steel			
	Painted	X	X	Steel used has scale-free surface, but is shipped lightly oiled. Specify cleaning prior to finishing.
	Bonderized & Enameled	X	X	
	Galvanized	X	X	
	Plastic Coated	X	X	
	Porcelain Enameled	X	X	Produced from low carbon open hearth steel adaptable to this finish.

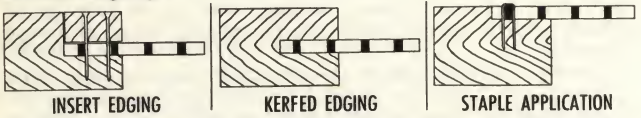
The finishes are generally arranged in ascending order of added initial cost. United States Gypsum does not apply these finishes at our expanded metal plant.

EDGINGS FOR EXPANDED METAL

For more effective design and fabrication of products using Expanded Metals, the selection of the proper edging is highly important. Since USG Expanded Metals are readily adapted to various edging materials, the designers choice of edging will usually be governed by the end use of the expanded metal assembly. Shown below is data on various edging materials and how to use them to provide greater flexibility of design, utility, economy and complete safety with USG Expanded Metals.

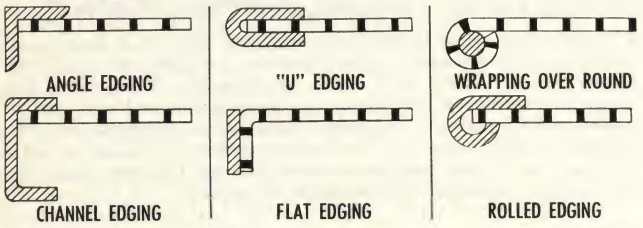
RIGID

Wood Edging



Softwoods are suitable for general utility edgings, however, greater permanence, wearability and beauty are obtained with hardwood edgings. Cost, availability and end use will affect the type of wood used.

Steel Edging



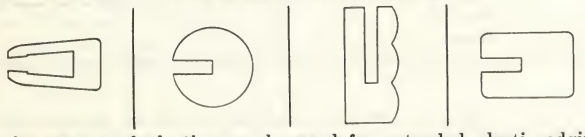
Steel edgings are popular for their high strength and ease of fabrication. Hot rolled angles, rounds, bars or channels and cold rolled U-edging or other specialty sections are also suitable for edging expanded metal.

Extruded Aluminum Edging



Extruded aluminum edgings are best suited for use with USG Aluminum Expanded Metal and should be selected when light weight, beauty, and extra corrosion resistance are required. Specialty shapes may be designed to serve other functions in addition to edging the expanded metal.

SEMI-RIGID . . . Extruded Plastic Edging



Various types of plastics can be used for extruded plastic edgings where light weight and color are needed and strength is not too important.

FLEXIBLE . . . Liquid Plastic Edging

The edges or the full sheet of USG Expanded Metal can be rubber or plastic coated either by anodic process or by dipping, to provide protection, resistance to abrasion and color.

FUNCTION AND UTILITY

RIGID Edgings are used where structural functions are required of the edging material. Secure attachment of the expanded metal to the edging is possible for greater rigidity of the sheet.

Wood Edgings are easily fabricated with standard hand or woodworking tools. Woods suitable for edgings or specially shaped moldings are available from lumber yards or manufacturers of wood moldings. The corners of frames may be either butted or mitered. The latter joint is best for kerfed and insert edgings. Corner joints are fastened by using an adhesive with reinforcing such as nailing, slip feathering, splining or doweling.

The *insert edging* is used where complete covering of the edge is required and only one finished side is needed. Finishing nails or staples are used to fasten the insert.

The *kerfed edging* presents a neat finished appearance in which either side can be used. The kerf holds the expanded metal in place.

The *staple* method of attaching USG Expanded Metal is the fastest and most economical way to apply a wood edging.

Steel Edgings are readily fabricated with standard metal working and welding equipment. They are available from steel supply warehouses or specialty steel fabricators. Hot rolled shapes are generally suitable for edging. Corners may be bent on rounds, squares and flats used on end, but angles, channels and U-Edging are best joined by coping and mitering. Mitered corner and end joints are usually arc welded but other methods of welding may be used. Excess welding materials should be removed to provide clean smooth joints.

Spotwelding the expanded metal to the edging is one of the fastest and simplest methods used. Arc welding can be done if care is taken not to burn the expanded metal.

Extruded Aluminum Edgings can be fabricated with standard metal cutting or woodworking machinery. They can be painted or anodized to match the expanded metal. Aluminum supply houses stock a wide variety of standard shapes, or special shapes may be obtained from a manufacturer of aluminum extrusions.

Corners are best formed by mitering and welding, brazing or fitting with a mechanical key. The edgings are formed into frames in the same manner as steel edging. Welding the corners and joints improves the strength of the frame but mechanical keys may be used.

In applying the expanded metal to the edging frame, a welded construction is strongest, but mechanical fastening by crimping the edging or fastening with rivets or screws may offer some economies.

SEMI-RIGID Edgings are used where stiffeners and rigidity are required of the edging material and strength is of limited importance.

Extruded Plastic Edgings can be readily fabricated with wood and metal working tools. They may be bent at a low heat, laminated with adhesives and have resistance to abrasions and bending. They can be finished with paint, lacquer or enamel or are available in a wide range of colors. Many shapes are available from plastic extruding companies which make suitable edging shapes, or dies can be developed to make special shapes.

Plastic extrusions are formed by heating, to approximately 180° F. and forming by hand or with male and female dies. They may be cut with band, circular or hand saws and laminated to themselves or other materials with adhesives.

FLEXIBLE Edgings are used as a decorative or protective edging generally on small pieces where strength is obtained through the expanded metal itself. The development and application of plastic edgings and coatings to USG Expanded Metals opens the door to many new uses for this versatile product.

FASTENING & FRAMING DETAILS

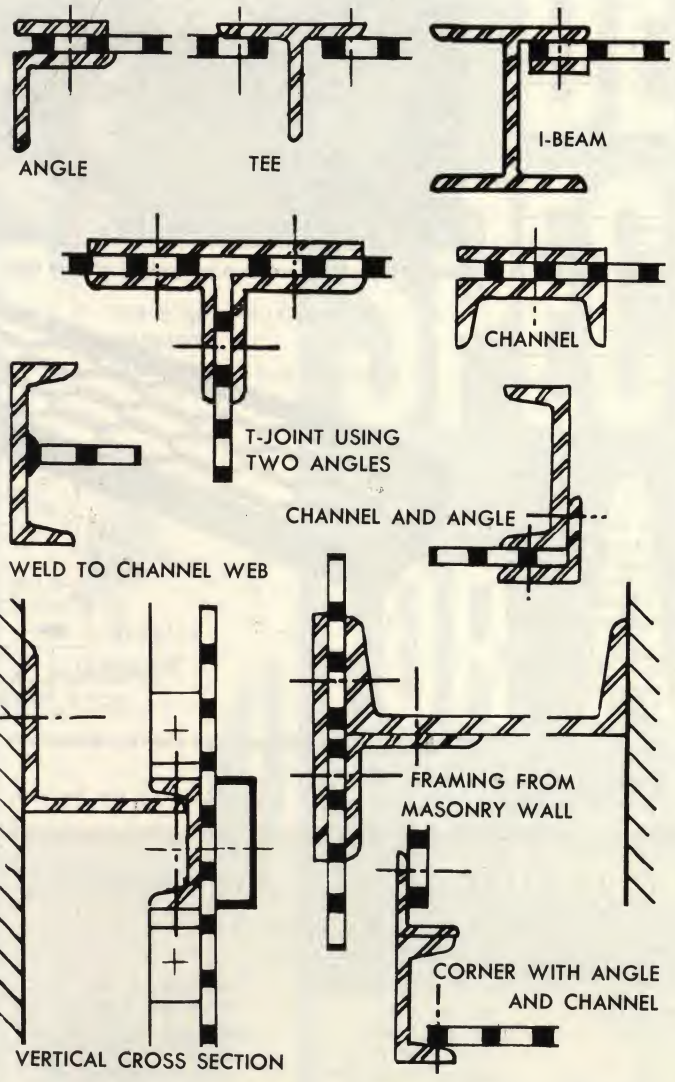
The architectural applications for USG Expanded Metals have increased rapidly since the introduction of USG Decorative Expanded Metal. Produced in both aluminum and steel, these decorative meshes provide a beautiful, functional, and economical material to serve architecturally for exterior sunshades, ornamental grilles, railing guards, space dividers and many other applications.

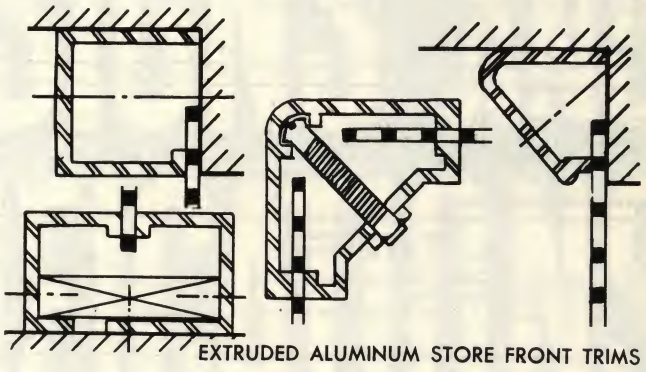
Though USG Expanded Metal is a unique and modern material, it adapts readily to framing sections and fastenings which are common in architectural use. Shown below are a series of typical details for use as a guide to the architect and fabricator.

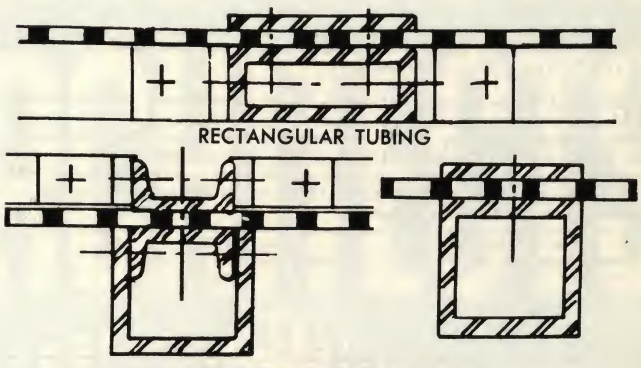
Many hot rolled and cold formed aluminum and steel sections may be used. Examples are shown of typical framings incorporating angles, bars, tees, channels and I-beams. Aluminum extrusions, such as rectangular and square tubing and various types of metal store-front trim, have also found their place as expanded metal framing materials. Shown also are suggestions for grid framing systems for constructing a new facade on an older building. Wood framing methods are shown on Page 14.

Fastening USG Expanded Metals to the supporting framework may be accomplished with self-tapping or sheet metal screws, fastening directly through the strand or opening in the expanded metal. Pull-through type or self-plugging type blind rivets or drive rivets may also be used. Welding at points where the expanded metal is adjacent to framing is also satisfactory.

The services of U.S.G. Sales Engineers and Architect Service Representatives are available to give you further information on specific applications. See Page 16 for a listing of U.S.G. Sales Offices.



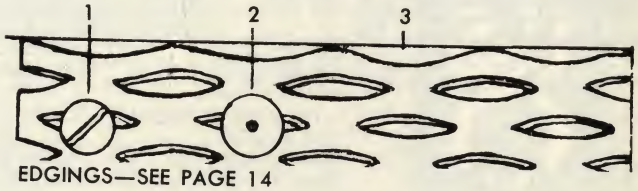

EXTRUDED ALUMINUM STORE FRONT TRIMS



HORIZONTAL CROSS SECTION

Fastening with screws, rivets, or welding

1. Self tapping or sheet metal screws.
2. Pull-through or self plugging type blind rivet or drive rivets.
3. Weld where expanded metal is adjacent to frame.



EDGINGS—SEE PAGE 14

GRATE-X*
EXPANDED METAL GRATING

For more information on GRATE-X see our catalog in Sweet's
Architectural File 13a/Un
Industrial Const. File . . 12c/Un
or see the AIA File 15-T, 30-J

GRATE-X is a heavy duty type expanded metal, made of steel plate which is slit and expanded in a cold-drawing operation.

Designed especially for use as light weight open steel flooring. GRATE-X is ideal for flooring, cat walks, platforms, stair treads, etc., where its principal use is for light storage and foot traffic. Many other practical uses are possible.

Economical—A wide selection of sizes and weights is available and its light weight, consistent with high strength makes for a most economical construction.

Extra Safety—The angular ridged surface formed by the multiple junctions of strands provides excellent antislip qualities. The closely-spaced long bond feature of GRATE-X provides greater contact area, resulting in a high traction surface, highly skid-proof yet smooth enough for wheel traffic. Water and oil drain off readily.

PROJECTION MESH is produced with small toothlike projections on the upper surface for maximum anti-skid qualities.

Large Open Area—The angular position of the strands and bonds permits free passage of light and air. Dust cannot accumulate.

GRATE-X TECHNICAL DATA

CARBON STEEL

Style (psf)	Diamond Size Width x Length	Opening Size Width x Length	Strand Size Width x Thickness	Sheet Size Width (SWD) x Length (LWD)
3.0 lb.	1.44″ x5.0″	1.09″ x3.31″	.23″ x.223″	48″* or 72″x60″, 96″** or 120″
3.14 lb.	2.00″ x6.0″	1.625″x4.875″	.312″x.250″	48″ or 72″x120″
4.0 lb.	1.395″x5.0″	1.02″ x3.25″	.30″ x.223″	48″, 60″ or 72″x96″** 60″x60″ or 120″
4.27 lb.	1.412″x4.0″	1.0″ x2.88″	.30″ x.250″	48″ or 72″x96″
5.0 lb.	1.143″x5.0″	.72″ x2.88″	.31″ x.223″	48″x60″, 96″** or 120″
6.25 lb.	1.412″x5.0″	.781″x3.125″	.38″ x284″	48″ or 72″x96″**
7.0 lb.	1.333″x5.0″	.70″ x2.75″	.40″ x.284″	48″x50″ or 100″

*This width produced on special order.
**Length shown is nominal, actual length is 97½″.

ALUMINUM

2.0 lb.	1.25″ x5.0″	.73″ x2.88″	.356″x2.50″	60″x60″ or 120″

PROJECTION MESH

1.87 lb.	1.125″x5.000″	.875″x3.188″	.187″x.134″	72″x120″

GRATE-X SELECTION GUIDE

Concentrated Load (Lbs. Per Foot of Width-SWD)	SPAN 2′-0″	2′-6″	3′-0″	3′-6″	4′-0″	4′-6″
50# Occasional pedestrian loads (window washers, inspectors, etc.)	3#	3#	4#	5#	7#	7#
100# Normal pedestrian traffic	3#	4#	5#	7#	7#	
150# Heavy pedestrian traffic or workmen with light equipment	4#	5#	7#	7#		
200#	5#	7#	7#			
250#	7#	7#				

Aluminum Grate-X is also available in a 2 lb. per square foot weight made from ¼ in. sheet stock.

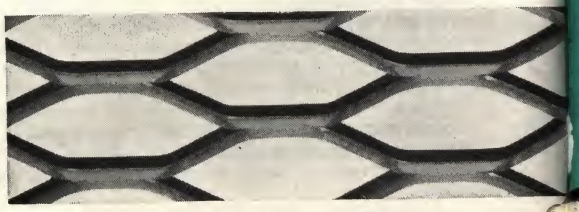
Special Sheet Sizes—In addition to furnishing the standard size sheets listed in the table above, GRATE-X can be furnished sheared to special sizes. Note: It is standard practice to shear GRATE-X on the first bond over the dimension specified, both SWD (Short Way of Diamond) and LWD (Long Way of Diamond).

Prefabricated Grate-X Treads—GRATE-X stair treads have all the advantages of GRATE-X and are ideal for fire escapes and all types of industrial and ship stairways. The treads are completely prefabricated by U. S. G. and shipped to the customer ready for installation. The stair treads are easily installed by a simple attachment with bolts and nuts to standard steel channel stringers. Bolts and nuts for attachment are not furnished with the treads.

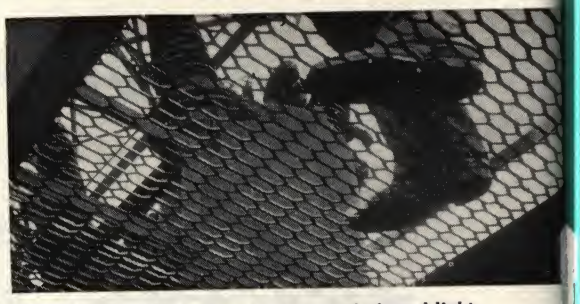
Tread lengths are available from 16 in. to 48 in. inclusive, in ½ in. increments. Standard widths are listed in table below.

No. 4-A Tread (Made from 4-lb. GRATE-X)	No. 5-A Tread (Made from 5-lb. GRATE-X)	Dimension "A" (See drawing)
5¾″	6¼″	2½″
7⅛″	7⅜″	2½″
8½″	8½″	4½″
9⅞″	9¾″	6″
11¼″	10⅞″	7″

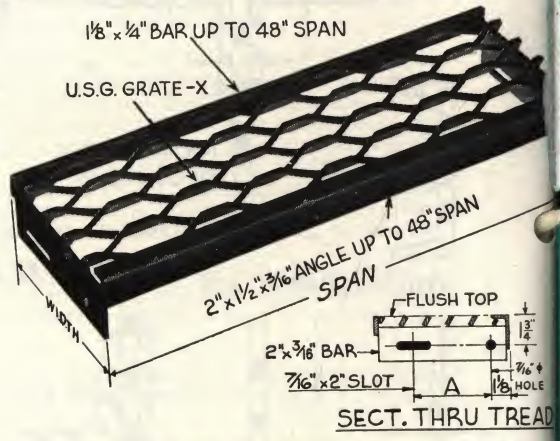
For complete information on GRATE-X and GRATE-X stair treads, ask for our GRATE-X catalog.



4 lb. GRATE-X approximately ⅓ actual size.



GRATE-X permits maximum passage of air and light.



(above) GRATE-X stair tread showing dimensions "A".

*T.M. Reg. U.S. Pat. Off.

UNITED STATES GYPSUM—The Greatest Name in Building

GENERAL OFFICES • 300 WEST ADAMS STREET • CHICAGO 6, ILLINOIS

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WALTHAM, MASS. (BOSTON)
WARWICK, R.I. (PROVIDENCE)

3-D METAL LETTERS DESIGNS AND SPECIFICATIONS FOR ARCHITECTS

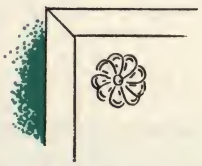
ABC
LETTERS
METAL OR PLASTIC



BULLETIN BOARDS
DIRECTORIES



CHURCH CROSSES



TABLETS
PLAQUES



EMBLEMS



FLAG POLES



MEMBERS
OF

NATIONAL ELECTRIC SIGN ASSOCIATION
NESA
ALABLE

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ABC LETTER COMPANY
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5301 NORTH KEDZIE AVENUE • IRving 8-6243 • CHICAGO 25, ILLINOIS

REPRESENTATIVES IN ALL PRINCIPAL CITIES
FOR COMPLETE INFORMATION ON BULLETINS & DIRECTORIES SEE ABC BULLETIN — SECTION 23a/Ab

WRITE FOR 52-PAGE ARCHITECTURAL HANDBOOK

3D BLOCK STYLE LETTERS

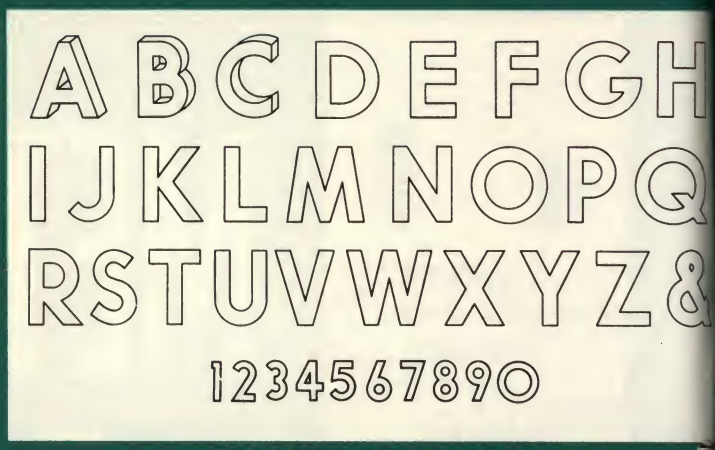
CAST ALUMINUM • STOCK PATTERN • CAST BRONZE
POLISHED • SATIN • BUFFED • ALUMILITED • ENAMEL • GOLDLITE

ABC LETTER COMPANY • A DIVISION OF NELSON-HARKINS Industries • CHICAGO 25, ILLINOIS

GOTHIC STYLE #101



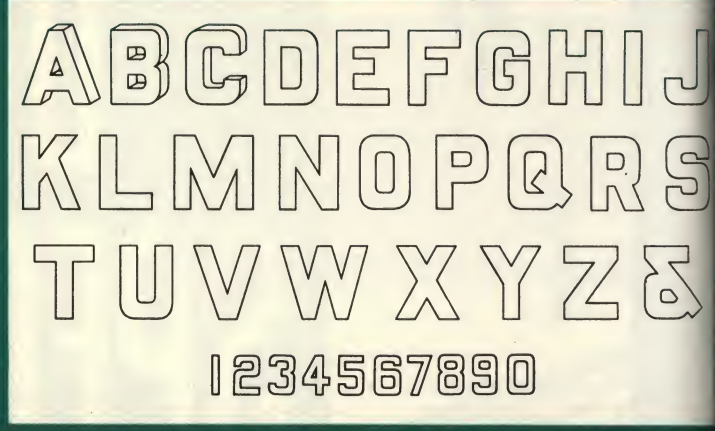
FUTURA STYLE #701



KABEL STYLE #601



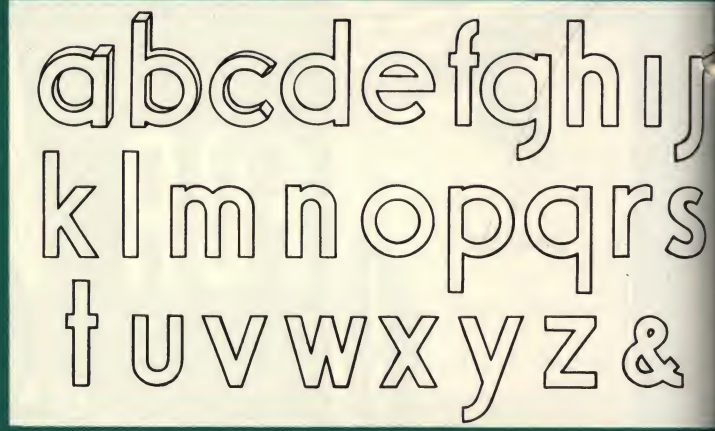
PHOENIX STYLE #901



MODERN STYLE #501



LOWER CASE #104



SIZES AVAILABLE FOR BLOCK STYLE LETTERS SHOWN ABOVE

REGULAR DEPTH			MEDIUM DEPTH			EXTENDED DEPTH			LOWER CASE			CAPITAL LETTERS (To go with Lower Case)		
Height	Face	Depth	Height	Face	Depth	Height	Face	Depth	Height	Face	Depth	Height	Face	Depth
3″ x	5/8″ x	5/8″	6″ x	1 1/4″ x	1″	*N-10″ x	2 1/2″ x	2″	3″ x	5/8″ x	5/8″	6″ x	1″ x	5/8″
4″ x	3/4″ x	5/8″	8″ x	1 5/8″ x	1 1/4″	N-12″ x	2 3/4″ x	2 1/2″	4″ x	3/4″ x	5/8″	8″ x	1 1/4″ x	5/8″
5″ x	7/8″ x	5/8″	9″ x	1 5/8″ x	1 1/4″	N-14″ x	2 5/8″ x	2 1/4″	5″ x	7/8″ x	5/8″	10″ x	1 3/4″ x	5/8″
6″ x	1″ x	5/8″	10″ x	1 3/4″ x	1 1/4″	N-16″ x	2 3/4″ x	2 1/4″	6″ x	1″ x	5/8″	12″ x	2″ x	5/8″
8″ x	1 1/4″ x	5/8″	12″ x	2 1/2″ x	1 1/4″	N-18″ x	3″ x	2 1/4″	6″ x	1 1/4″ x	1 1/4″	12″ x	2 1/2″ x	1 1/4″
9″ x	1 5/8″ x	5/8″	14″ x	2 1/2″ x	1 1/4″	N-20″ x	3 1/2″ x	2 1/2″	8″ x	1 5/8″ x	1 1/4″	16″ x	2 3/4″ x	1 1/4″
10″ x	1 3/4″ x	5/8″	15″ x	2 5/8″ x	1 1/4″	N-24″ x	4″ x	3″	10″ x	2″ x	1 1/4″	18″ x	3″ x	1 1/4″
12″ x	2″ x	5/8″	16″ x	2 3/4″ x	1 1/4″	*Can be used with or without Neon.								
14″ x	2 1/2″ x	5/8″	18″ x	3″ x	1 1/4″									

ARCHITECTS' SPECIFICATIONS

CAST ALUMINUM — ALUMILITED

Cast Aluminum Letters to be manufactured by Nelson-Harkins Industries, 5301 North Kedzie Avenue, Chicago 25, Illinois. Letters shall be FUTURA Design No., #701 Style, ALUMILITE SATIN Finish, 12 Inch Hi[illegible] 2 1/2 Inch Stroke, 1 1/4 Inch Depth, PI-1" Mounting Method.

Casting shall be from architectural aluminum alloy and poured according to modern scientific foundry practices. Face of letters shall be ground, polished and buffed to a smooth lustre with the sides carefully filed and mechanically ground (not buffed). Degreased and Alumilited according to latest patented Alcoa process.

3D RIBBON STYLE LETTERS

6f
Ab

STANDARD • CONDENSED

CAST ALUMINUM • STOCK PATTERN • CAST BRONZE

POLISHED • SATIN • BUFFED • ALUMILITED • ENAMEL • GOLDLITE

GOTHIC RIBBON STYLE #102



CONDENSED GOTHIC RIBBON STYLE #103



FUTURA RIBBON STYLE #702



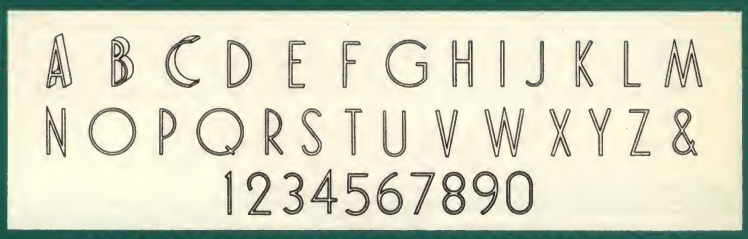
CONDENSED FUTURA RIBBON STYLE #703



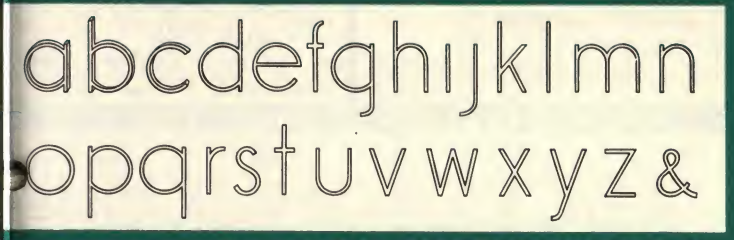
KABEL RIBBON STYLE #602



CONDENSED KABEL RIBBON STYLE #603



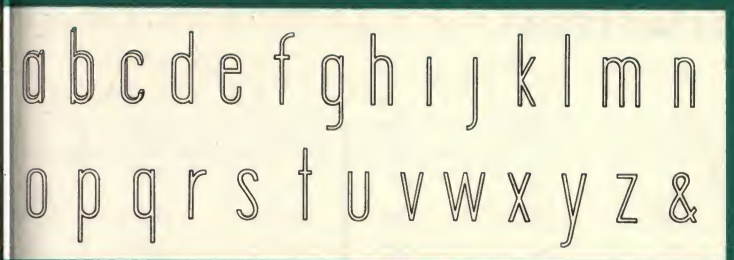
LOWER CASE RIBBON STYLE #204



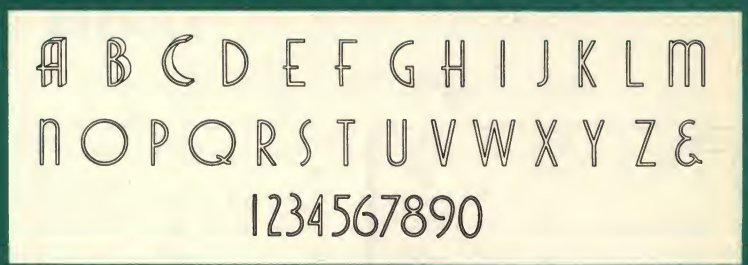
CONDENSED PHOENIX RIBBON STYLE #903



CONDENSED LOWER CASE RIBBON STYLE #304



CONDENSED MODERN RIBBON STYLE #503



ABC LETTER COMPANY • A DIVISION OF **NELSON-HARKINS** *Industries* • CHICAGO 25, ILLINOIS

SIZES AVAILABLE FOR RIBBON STYLE LETTERS SHOWN ABOVE

SHALLOW DEPTH			REGULAR DEPTH			MEDIUM DEPTH			EXTENDED DEPTH			LOWER CASE			CAPITAL LETTERS (To go with Lower Case)		
Height	Face	Depth	Height	Face	Depth	Height	Face	Depth	Height	Face	Depth	Height	Face	Depth	Height	Face	Depth
2″	¼″	¾″	3″	⅜″	1⅛″	6″	⅜″	1½″	10″	¾″	2″	2″	¼″	¾″	4″	¼″	¾″
3″	¼″	¾″	4″	⅜″	1⅛″	8″	½″	1½″	12″	¾″	2½″	3″	⅜″	1⅛″	6″	⅜″	1⅛″
4″	¼″	¾″	5″	⅜″	1⅛″	10″	½″	1½″	15″	¾″	2¾″	4″	⅜″	1⅛″	8″	⅜″	1⅛″
5″	¼″	¾″	6″	⅜″	1⅛″	12″	½″	1½″	18″	¾″	3″	5″	⅜″	1⅛″	10″	⅜″	1⅛″
			8″	⅜″	1⅛″							6″	⅜″	1⅛″	12″	⅜″	1⅛″
			10″	⅜″	1⅛″												
			12″	⅜″	1⅛″												

3D AUTHENTIC STANDARD STYLE LETTERS

CAST ALUMINUM • STOCK PATTERN • CAST BRONZE

POLISHED • SATIN • BUFFED • ALUMILITED • ENAMEL • GOLDLITE

ABC LETTER COMPANY • A DIVISION OF NELSON-HARKINS Industries • CHICAGO 25, ILLINOIS

ROMAN STYLE #200

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&
1234567890

Height	Stroke	Depth	Height	Stroke	Depth
3"	3/8" x 1 3/16"	1/2"	12"	1 1/4" x 3/4"	5/8"
6"	1" x 1/2"	5/8"	15"	2 1/8" x 1 1/8"	1 1/8"
8"	1" x 5/8"	5/8"	16"	2 1/2" x 1 1/8"	1 1/8"
10"	1 1/2" x 3/4"	3/4"	18"	3" x 1 3/8"	1 1/2"

PRISMATIC STYLE #400

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&
1234567890

Height	Stroke	Depth	Height	Stroke	Depth
3"	1/2" x 1/4"	3/8"	10"	1 1/4" x 7/8"	3/4"
4"	5/8" x 3/8"	3/8"	12"	1 1/2" x 3/4"	3/4"
5"	3/4" x 3/8"	1/2"	14"	1 7/8" x 1"	3/4"
6"	7/8" x 1/2"	5/8"	18"	2 5/8" x 1 5/16"	3/4"
8"	1 1/8" x 5/8"	3/4"			

BROADWAY STYLE #300

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&
1234567890

Height	Stroke	Depth	Height	Stroke	Depth
3"	3/4" x 3/8"	5/8"	12"	2 1/2" x 1"	5/8"
4"	1" x 1/2"	5/8"	12"	3 1/4" x 1 3/8"	1 1/4"
6"	1 1/2" x 3/4"	3/4"	14"	2 3/4" x 1 1/4"	1 5/8"
8"	2 1/4" x 3/4"	7/8"	15"	3" x 1 1/2"	5/8"
10"	2 1/2" x 1"	1 1/8"	16"	3 1/2" x 2"	1 1/4"

BETON STYLE #800

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&
1234567890

Height	Stroke	Depth	Height	Stroke	Depth
6"	1 3/8" x 1"	3/8"	15"	4" x 2 1/2"	2"
8"	2" x 1 1/4"	1/2"	18"	4 3/4" x 3 1/4"	2 1/2"
12"	3" x 2"	1 1/2"			

MINIATURE LETTERS - GOTHIC STYLE #105

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&
1234567890

Height	Stroke	Depth	Height	Stroke	Depth
1"	5/32"	3/32"	2"	9/32"	3/16"
1 1/2"	3/16"	3/32"	2 1/2"	3/8"	1/4"
1 3/4"	1/4"	3/32"	3"	1/2"	1/4"
			4"	11/16"	1/4"

MINIATURE LETTERS - RIBBON STYLE #705

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&
1234567890

Height	Stroke	Depth	Height	Stroke	Depth
1"	3/32"	7/32"	2 1/2"	1/4"	1/2"
1 1/2"	1/8"	9/32"	3"	9/32"	9/16"
2"	7/32"	13/32"	4"	5/16"	11/16"

- See Mechanical Finishes on Page 8.
- See Mounting Methods on Page 8.
- Special Styles and Sizes Made to Order.
- Write for New, Complete Metal Letter and Building Specialties Handbook.

ARCHITECTS' SPECIFICATIONS

CAST ALUMINUM — ALUMILITED

Cast Aluminum Letters to be manufactured by Nelson-Harkins Industries, 5301 North Kedzie Avenue, Chicago 25, Illinois. Letters shall be 300 Design No., ~~BROADWAY~~ Style, ~~STAND. ALUMILITE~~ Finish, 4 Inch High, 18 1/2 Inch Stroke, 5/8 Inch Depth, F2 Mounting Method.

Casting shall be from architectural aluminum alloy and poured according to modern scientific foundry practices. Face of letters shall be ground, polished and buffed to a smooth lustre with the sides carefully filed and mechanically ground (not buffed). Degreased and Alumilited according to latest patented Alcoa process.

FABRICATED METAL LETTERS

ANY STYLE • ANY SIZE

STAINLESS STEEL • PORCELAIN ENAMEL • BRONZE • SHEET METAL • ALUMINUM

STAINLESS STEEL

Block Styles:
GOTHIC — FUTURA — KABEL — BROADWAY

Height	Recommended Stroke	Recommended Depth	Recommended Average Width
6"	1"	1½"	4"
8"	1¼"	2"	6"
10"	1¼"	2"	7"
12"	1½"	2½"	8"
14"	2"	2½"	9"
16"	2½"	2½"	11"
18"	3"	3"	12"
20"	3½"	3"	13½"
22"	3¾"	3"	15"
24"	4"	3"	16"
26"	4"	3"	17½"
28"	4½"	3"	19"
30"	5"	3½"	20"
32"	5½"	3½"	21½"
34"	5½"	3½"	23"
36"	6"	4"	24"
38"	6"	4"	25½"
40"	6½"	4"	27"
42"	7"	4"	28"
44"	7"	4"	29½"
	7½"	4"	31"
	8"	4"	32"

STAINLESS STEEL SIDES
PORCELAIN FACES

Block Styles:
GOTHIC — FUTURA — KABEL — BROADWAY

Height	Recommended Stroke	Recommended Depth	Recommended Average Width
10"	1¼"	2"	6½"
12"	1½"	2"	8"
14"	1½"	2"	10"
16"	2"	2"	12"
18"	2"	3"	12"
20"	3"	3"	14"
24"	4"	3"	17"
30"	5"	3"	20"
36"	6"	3"	26"

STAINLESS STEEL SIDES
PLASTIC FACES

Block Styles:
GOTHIC — FUTURA — KABEL — BROADWAY

Height	Recommended Stroke	Recommended Depth	Recommended Average Width
12"	2"	3"	8"
14"	2"	3"	10"
16"	2½"	3"	12"
18"	2½"	4"	12"
20"	3"	4"	14"
24"	4"	4"	17"
30"	5"	5"	20"
36"	6"	6"	26"

PORCELAIN ENAMELED

Block Styles: Any Color
GOTHIC — FUTURA — KABEL — BROADWAY

	INVERTED CHANNEL			SEMI-CHANNEL	
Height	1" - 3" Depth	4" - 8" Depth	Height	1" - 3" Depth	4" - 8" Depth
12"	"	"	12"	"	"
14"	"	"	14"	"	"
16"	"	"	16"	"	"
18"	"	"	18"	"	"
20"	"	"	20"	"	"
22"	"	"	22"	"	"
24"	"	"	24"	"	"
26"	"	"	26"	"	"
28"	"	"	28"	"	"
30"	"	"	30"	"	"
36"	"	"	36"	"	"
42"	"	"	42"	"	"
48"	"	"	48"	"	"

PORCELAIN ENAMEL SIDES
PLASTIC FACES

Block Styles: Any Color
GOTHIC — FUTURA — KABEL — BROADWAY

Height	Recommended Stroke	Recommended Depth	Recommended Average Width
12"	2"	3"	8"
14"	2"	3"	10"
16"	2½"	3"	12"
18"	2½"	4"	12"
20"	3"	4"	14"
24"	4"	4"	17"
30"	5"	5"	20"
36"	6"	6"	26"

BRONZE

Block Styles:
GOTHIC — FUTURA — KABEL — BROADWAY

Height	Recommended Stroke	Recommended Depth	Recommended Average Width
6"	1"	2"	4"
8"	1¼"	2"	6"
10"	1¼"	2"	6½"
12"	1½"	2½"	8"
14"	1½"	2½"	10"
16"	2"	2½"	12"
18"	2"	3"	13"
20"	3"	3"	14"
24"	4"	3"	17"

ALUMINUM - COLOR - SATIN

Block Styles:
GOTHIC — FUTURA — KABEL — BROADWAY

Height	Recommended Stroke	Recommended Depth	Recommended Average Width
10"	1¼"	2"	6½"
12"	1½"	2½"	8"
14"	1½"	2½"	10"
16"	2"	2½"	12"
18"	2"	3"	13"
20"	3"	3"	14"
24"	4"	3"	17"
30"	5"	3"	20"
36"	6"	3"	26"

ALUMINUM SIDES
PLASTIC FACES

Block Styles:
GOTHIC — FUTURA — KABEL — BROADWAY

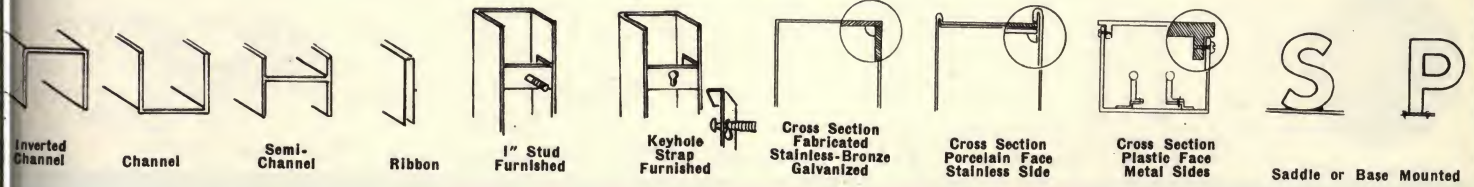
Height	Recommended Stroke	Recommended Depth	Recommended Average Width
12"	2"	3"	8"
14"	2"	3"	10"
16"	2½"	3"	12"
18"	2½"	4"	12"
20"	3"	4"	14"
24"	4"	4"	17"
30"	5"	5"	20"
36"	6"	6"	26"

SHEET METAL GALVANIZED

Block Styles:
GOTHIC — FUTURA — KABEL — BROADWAY

Height	Recommended Stroke	Recommended Depth	Recommended Average Width
6"	1"	2"	4"
8"	1¼"	2"	6"
10"	1¼"	2"	6½"
12"	1½"	2½"	8"
14"	1½"	2½"	10"
16"	2"	2½"	12"
18"	2"	3"	13"
20"	3"	3"	14"
24"	4"	3"	17"

FABRICATION DETAILS



Inverted Channel | Channel | Semi-Channel | Ribbon | 1" Stud Furnished | Keyhole Strap Furnished | Cross Section Fabricated Stainless-Bronze Galvanized | Cross Section Porcelain Face Stainless Side | Cross Section Plastic Face Metal Sides | Saddle or Base Mounted

ARCHITECTS' SPECIFICATIONS FOR FABRICATED LETTERS

STAINLESS STEEL—Stainless Steel Fabricated Letters to be manufactured by Nelson-Harkins Industries, 5301 North Kedzie Avenue, Chicago 25, Illinois. Letters shall be GOTHIC BLOCK Style, 24 Inch High, 4 Inch Stroke, 3 Inch Depth, PIB-3" PROJ. Mounting Method. Letters to be fabricated from 20 gauge (or heovier depending on size) 18-8 alloy, 302 type with No. 4 finish. Sheets to have protective covering during fabrication. Upon completion covering to be removed and letters completely cleaned.

STAINLESS SIDES—PLASTIC FACE—(insert line below in specification above)
Stainless Steel Sides with RED Color Translucent Plastic Face with Metalbacks.

PORCELAIN ENAMEL—Porcelain Enamel Letters to be manufactured by Nelson-Harkins Industries, 5301 North Kedzie Avenue, Chicago 25, Illinois. Letters shall be #102 FIRE RED Color, FUTURA Style, 18 Inch High, _____ Inch Stroke, 3 Inch Depth, PI-2" PROJECTED Mounting Method. Letters shall be fabricated from genuine enameling stock and fired, at 1500 degrees F., coated inside and out. Letters shall have uniform seams ground flush with side flanges, accurately aligned. Letters to be fabricated from 14 gauge faces, 18 gauge sides.

PORCELAIN SIDES—PLASTIC FACE—(insert line below in specification above).
Porcelain Sides #1320 WHITE Color with Translucent WHITE Color Plastic Face with Metalbacks.

BRONZE—Bronze Fabricated Letters to be manufactured by Nelson-Harkins Industries, 5301 North Kedzie Avenue, Chicago 25, Illinois. Letters shall be KABEL Style, 6 Inch High, 2 Inch Stroke, POLISHED Finish, P3C-1½" Inch Depth, Mounting Method. Letters to be fabricated from 20 gauge (or heovier depending on size). Sheets to have protective covering during fabrication. Upon completion covering to be removed and letters completely cleaned.

ALUMINUM—Aluminum Fabricated Letters are to be manufactured by Nelson-Harkins Industries, 5301 North Kedzie Avenue, Chicago 25, Illinois. Letters shall be BLOCK Style, 24 Inch High, 4 Inch Stroke, 3 Inch Depth, GOLDLITE Finish and to be erected according to P3-2" PROJECTED Mounting Method. Letters to be fabricated from .091 thick Aluminum sheet. Welds shall be ground smooth and letters free from distortions.

ABC LETTER COMPANY • A DIVISION OF NELSON-HARKINS Industries • CHICAGO 25, ILLINOIS

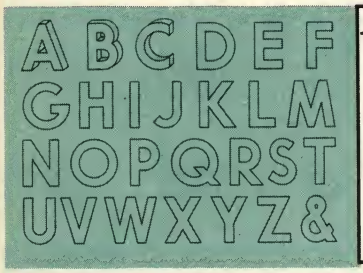
PLASTIC LETTERS • TABLETS • EMBLEMS • CADUCEUS

ANY STYLE • ANY SIZE

ALUMINUM • BRONZE • STAINLESS STEEL • PORCELAIN ENAMEL • PLASTIC

PLASTIC LETTERS

MODEL No. P-704 — BLOCK
FUTURA STYLE
MOLDED • FLAT FACE
Third Dimensional • Any Standard Color



Height	Stroke	Depth
4″	¾″	¾″
6″	1¼″	1″
8″	1⅝″	1″
10″	1¾″	1¼″
12″	2¾″	2½″
14″	2⅝″	2¼″
16″	2¾″	2¼″
18″	3″	2¼″
20″	3½″	2½″
24″	4″	3″

MODEL No. P-904 — RIBBON
CONDENSED PHOENIX RIBBON STYLE
MOLDED • FLAT FACE
Any Standard Color

Height	Stroke	Depth
4″	⅜″	¾″
6″	⅜″	¾″
8″	½″	1″
10″	¾″	1¼″
12″	¾″	1½″
15″	¾″	1¾″
18″	¾″	1½″



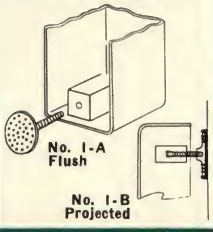
BUILT-UP LETTERS



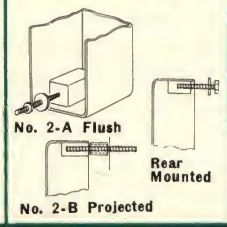
One or Two Colors
Any Style
Any Size
Third Dimensional

MOUNTING DETAILS

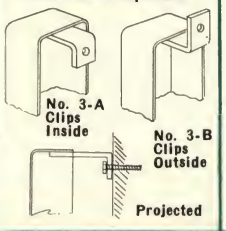
METHOD #1
Miracle Pads
Flush or Projected



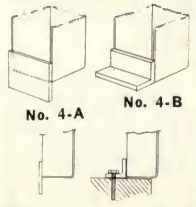
METHOD #2
Studs & Sleeves
Flush or Projected



METHOD #3
Plastic Clips
Flush or Projected



METHOD #4
Free Standing



CUT-OUT LETTERS

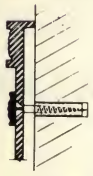
Any Size
Any Color
⅛″ and ¼″ Thickness



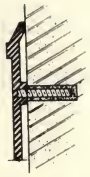
BRONZE OR ALUMINUM TABLETS

FOR BANKS • SCHOOLS • CHURCHES • PUBLIC BUILDINGS

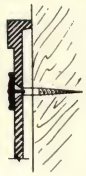
TABLET MOUNTING DETAILS



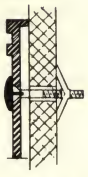
No. 1
Masonry Background
Concrete, Brick Stone



No. 2
Mounting Solid Background



No. 3
Wood Background



No. 4
Background Tile, Panels, etc.

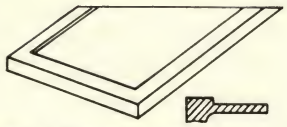


SPECIAL DESIGN

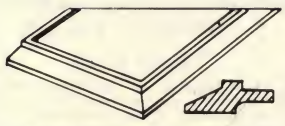
STANDARD SIZES

8″ x 16″	24″ x 28″
12″ x 18″	24″ x 30″
15″ x 20″	24″ x 36″
16″ x 22″	28″ x 36″
18″ x 24″	36″ x 36″
20″ x 24″	

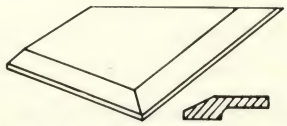
Please advise material, size, border and mounting when ordering.



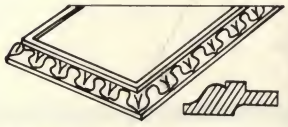
No. 1 Straight Edge



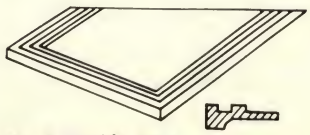
No. 4 Raised Single Line Bevel



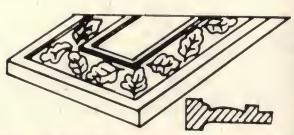
No. 2 Bevel Edge



No. 5 Single Line Shield



No. 3 Double Edge



No. 6 Double Line Vine

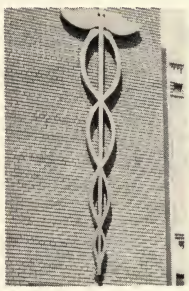
CADUCEUS



STOCK PATTERN
12, 18, 24, 30, 36, 48″



STOCK PATTERN
56″ High



FABRICATED
to any style or size.

TRADEMARKS & EMBLEMS

Made To Your Specifications









BULLETIN BOARDS • DIRECTORY BOARDS • CROSSES • FLAG POLES

MANY STYLES • MANY SIZES

6f
Ab

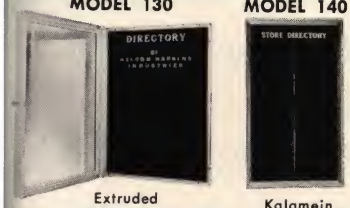
ALUMINUM • BRONZE • STAINLESS STEEL • PORCELAIN ENAMEL • PLASTIC

BULLETIN • DIRECTORY & ANNOUNCEMENT BOARDS

BULLETIN BOARDS

Changeable Letter (A) or Cork Background—Hinged Door with Lock

MODEL 130 MODEL 140



Extruded Aluminum Frame

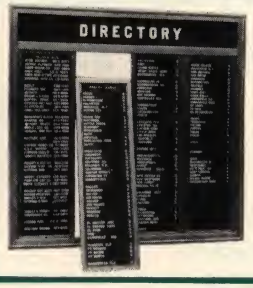
Kalamein Stainless or Bronze Frame

SIZES

12″ x 15″	20″ x 26″	28″ x 40″
15″ x 20″	20″ x 30″	30″ x 36″
16″ x 20″	22″ x 28″	30″ x 42″
15″ x 25″	20″ x 36″	32″ x 44″
16″ x 26″	24″ x 30″	34″ x 48″
18″ x 24″	24″ x 36″	36″ x 48″
20″ x 25″	24″ x 40″	36″ x 36″

SECTIONAL BUILDING DIRECTORIES

Stainless Steel or Bronze Kalamein Frame—Insert Glass Covered Removable Sections—Felt Covered Grooved Background for Changeable Letters (A), Felt Covered Grooved Interchcangeable Strips (B) for Changeable Letters or Embossed Printed Name Strips (C)



MODEL 142

CAPACITY CHART

Frame Hgt. → / Sections	26″	33⅞″	40⅜″	47⅞″	Frame Width ↓
	Number of Names				
1	45	65	80	100	10½″
2	90	130	160	200	18″
3	135	195	240	300	25½″
4	180	260	320	400	33″
5	225	325	400	500	40½″
6	270	390	480	600	48″

ARCHITECTS' SPECIFICATIONS

Furnish and install (Bulletin, Directory, Announcement or Display) Board as manufactured by Nelson-Harkins Industries, 5301 N. Kedzie Ave., Chicago 25, Ill. Board shall be Model No. 130 with EXTRUDED ALUM. Material Frame, with (Lock or No Lock) Door 36 inches high, 30 inches wide, with CHANGEABLE background.

ANNOUNCEMENT • CHURCH POSTER & DISPLAY CASES

Stainless Steel or Bronze Kalamein Frame
Illuminated — Weatherproof
Hinged Locking Glass Door
Changeable Letter Background (A)—Cork Tack Background or Display Shelves



MODEL 147

SIZES

16″ x 20″
16″ x 26″
18″ x 24″
20″ x 26″
22″ x 28″
24″ x 30″
24″ x 36″
28″ x 40″
30″ x 36″
32″ x 44″
34″ x 48″

CHANGEABLE LETTER SIGNS
Stainless Steel Frame

MODEL 100

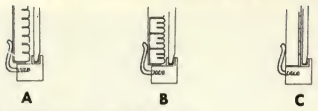


For Felt Covered Grooved Backgrounds for Changeable Letters (A)

SIZES

16″ x 20″	24″ x 30″	34″ x 48″
16″ x 26″	24″ x 36″	36″ x 36″
18″ x 24″	24″ x 40″	60″ x 36″
20″ x 26″	30″ x 36″	60″ x 48″
20″ x 30″	30″ x 42″	72″ x 48″
20″ x 36″	32″ x 44″	96″ x 48″

LETTERING METHODS



A—Changeable Letters sizes.

B—Removable Felt Grooved Strips for easy re-arrangement of Directory Boards.

C—Removable Embossed Printed Strips. Complete copy machine printed. Most economical type.

CHANGEABLE LETTERS



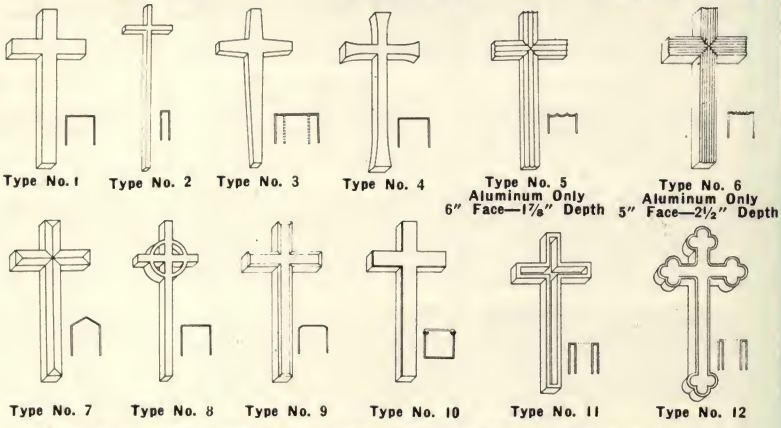
Style	Material	Type	Sizes
A	Celluloid	Block	¼, ⅜, ½, ¾, 1, 1½, 2
B	Celluloid	Phoenix	¼, ½, ¾, 1, 1½, 2
C	Celluloid	Lower Case	⅜ only
D	Plastic	Roman	¼, ⅜, ½, ¾, 1, 1½, 2
E	Plastic	Gothic	¼, ⅜, ½, ¾, 1, 1½
G	Aluminum	Roman	¼, ⅜, ½, ¾, 1, ½, 2, 2½, 3

CHURCH CROSSES

STAINLESS STEEL • ALUMINUM • BRONZE • BRASS • PORCELAIN • PLASTIC FACE

ALUMINUM • BRONZE • BRASS • STANDARD SIZE CROSSES

Standard Sizes Ribbon Bar Aluminum	Standard Sizes Ribbon Bar Bronze	Standard Sizes Ribbon Tube Aluminum	Standard Sizes Ribbon Tube Brass	Standard Sizes Square Tube Aluminum	Standard Sizes Square Tube Brass
1″ x 2″	½″ x 1″	1″ x 2″	1″ x 2″	1″ x 1″	1″ x 1″
¾″ x 2½″	½″ x 1½″	1¼″ x 2½″	1¼″ x 2½″	1½″ x 1½″	1½″ x 1½″
⅝″ x 3″	½″ x 2″	1¾″ x 3″	1¾″ x 3″	2″ x 2″	1¾″ x 1¾″
1″ x 3″	½″ x 2½″	1¾″ x 4″	1¾″ x 4″	2½″ x 2½″	2″ x 2″
¾″ x 4″	½″ x 3″	2″ x 5″	1¾″ x 5″	3″ x 3″	3″ x 3″
				4″ x 4″	

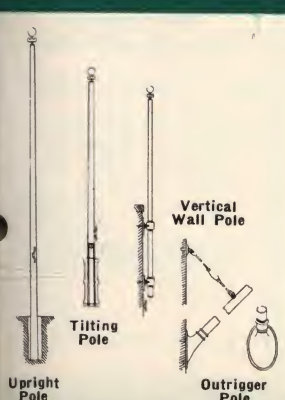


Stainless—Porcelain and Plastic Face Crosses made to any style or size.

Any Special Size or Style Fabricated to Exact Specifications

FLAG POLES

ALUMINUM • STEEL • COMPLETE UNITS • UPRIGHT • TILTING • WALL • OUTRIGGER



Upright Steel Pole Cone Tapered Gold Leaf Ball Revolving Truck Ground Protector Foundation Tube	Upright Aluminum Pole Cone Tapered Aluminum Ball Revolving Truck Foundation Tube	Tilting Aluminum Pole Cone Tapered Satin Waxed Aluminum Ball Revolving Truck Steel Tilting Unit Surface Channels Counterweights	Vertical Wall Steel Pole Gold Leaf Ball Primed Swivel Block Two Wall Brackets	Vertical Wall Aluminum Pole Cone Tapered Spun Aluminum Ball Revolving Truck Two Wall Brackets	Outrigger Steel Pole Cone Tapered Acorn Cap Primed Swivel Block Bronze Outrigger Base *Over 16′ With Braces	Outrigger Aluminum Pole Cone Tapered Acorn Cap Satin Waxed Swivel Block Aluminum Outrigger Base *Over 16′ With Braces
25′	20′	20′	15′	15′	10′	8′
30′	25′	25′		20′		10′
35′	30′		20′	23′	12′	12′
40′		30′		28′		15′
50′	35′	35′	25′		16′	16′
60′	40′			33′	*18′	*18′
70′	50′	40′		38½′		*20′
75′	60′	50′	30′	44′	*20′	*23′

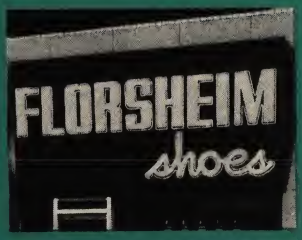
ABC LETTER COMPANY • A DIVISION OF NELSON-HARKINS *Industries* • CHICAGO 25, ILLINOIS

MOST ARCHITECTS SPECIFY

ABC LETTER COMPANY
A DIVISION OF
NELSON-HARKINS *Industries*
5301 N. KEDZIE AVE. • CHICAGO 25, ILL.

LETTERS • TABLETS • BULLETINS • CADUCEUS • CROSSES • FLAG POLES









Wherever You Are — Wherever You Go You Will See

NELSON-HARKINS INDUSTRIES BUILDING SPECIALTIES

NATIONALLY USED
- Leading Architects
- Sign Creators
- Outstanding Designers
- Store Planners
- Recognized Engineers
- Specification Writers

NATIONALLY RECOGNIZED
- Architectural Record
- Architectural Products
- Signs Of The Times
- Glass Digest
- Architectural Metals
- Alcoa News Letter

MECHANICAL SPECIFICATIONS FOR ALUMINUM FINISHES

NATURAL ALUMINUM: Filed, ground sides, belt polished face, lacquered.

BAKED ENAMEL: Filed, ground sides, polished face, degreased, pretreated, one color high temperature baked enamel.

STANDARD ALUMILITE: Filed, ground sides, belt polished face, alumilited.

SATIN ALUMILITE: Filed, belt polished sides (for contrast), satin buffed face, alumilited. (Nelson-Harkins Industries recommends this finish as the most desirable of the alumilited finishes.)

GOLDLITE ALUMILITE: Same as satin alumilite finish except that letters are Gold color alumilited by approved process of the Aluminum Company of America. Some variations of shades are inherent. Consult local Alcoa office for exact information.

BRONZE FINISHES

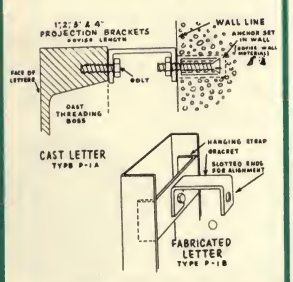
POLISHED BRONZE: Filed, ground, belt polished face and sides, lacquered.

OXIDIZED BRONZE: Filed, ground, belt polished face and sides, chemically oxidized to a statuary medium brown color.

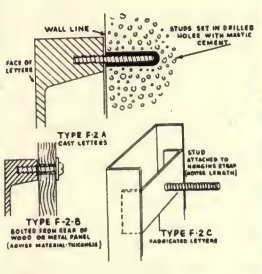
MOUNTING DETAILS FOR ALL TYPES OF INSTALLATIONS

Please specify mounting method by detail number and space available.

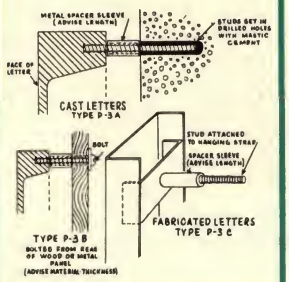
TYPE P-1
PROJECTED MOUNTING WITH BRACKETS



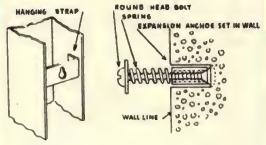
TYPE F-2
FLUSH MOUNTING WITH PINS OR BOLTS



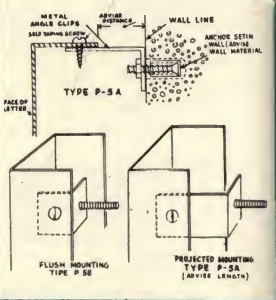
TYPE P-3
PROJECTED MOUNTING WITH SLEEVES



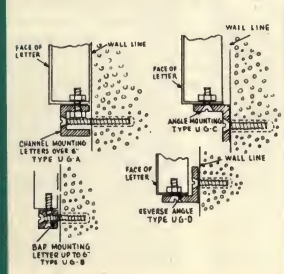
TYPE P-4
KEYHOLE MOUNTING FABRICATED LETTERS ONLY



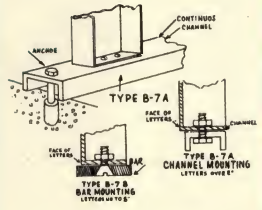
TYPE P-5
ANGLE MOUNTING FABRICATED LETTERS ONLY



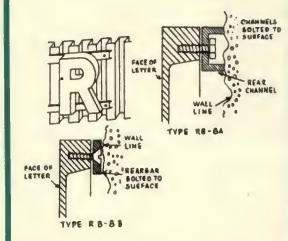
TYPE U-6
UNIT MOUNTING ANGLE—BAR—CHANNEL



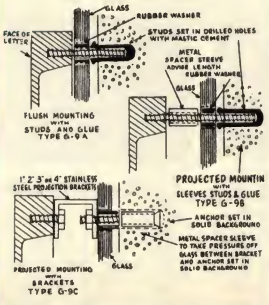
TYPE B-7
FREE STANDING CHANNEL—BAR



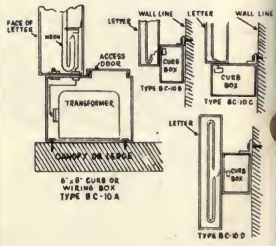
TYPE RB-8
DOUBLE CHANNEL IRREGULAR SURFACE



TYPE G-9
STRUCTURAL GLASS PINS—BRACKETS

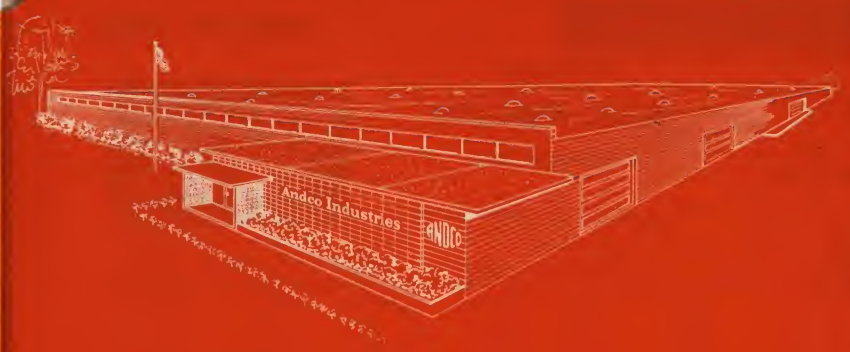


TYPE BC-10
FREE STANDING CURB BOX WITH NEON



NELSON • HARKINS Industries

Catalog No. 60-ML-61



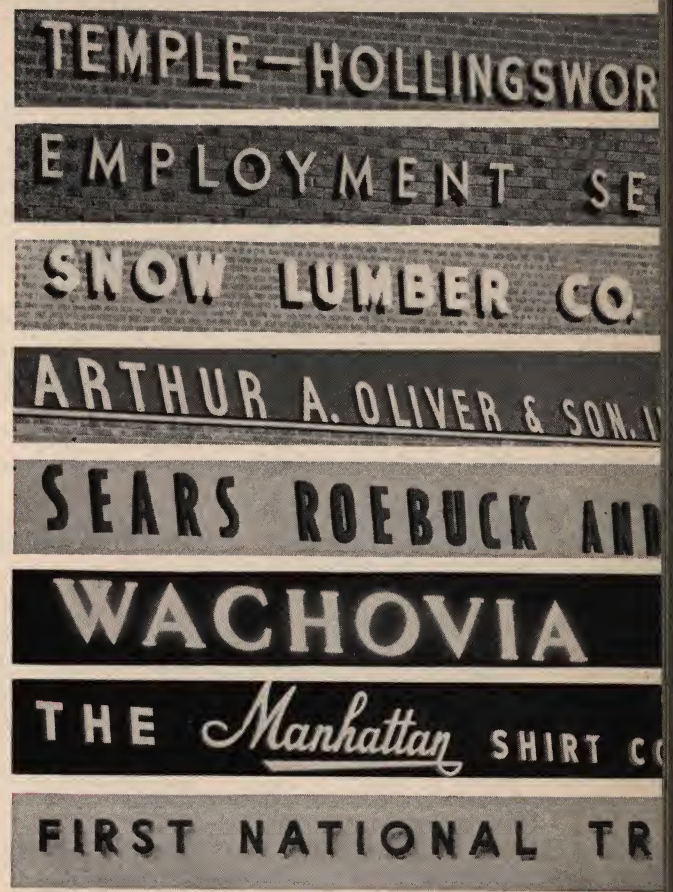
OFFICE, FACTORY AND SHOWROOMS

ANDCO INDUSTRIES CORPORATION
620 High Point Road, Greensboro, N. C.

Specify

Andco architectural METAL LETTERS

a compact catalog of architectural information



- CAST ALUMINUM
- CAST BRONZE
- WELDED ALUMINUM
- STAINLESS STEEL
- PORCELAIN ENAMEL
- WELDED ALUMINUM PLEXIGLAS FACES
- STAINLESS STEEL PLEXIGLAS FACES
- WELDED ALUMINUM BACK-LIGHTED

Andco Letters are available to established steel and general contractors through. . . .

ANDCO REPRESENTATIVE

Your Andco Representative will be glad to help you solve any letter problem you may have. Write Andco for name of representative near you.

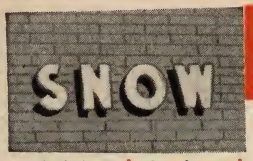
ANDCO PRODUCTS

special designs

fabricated letters

unlimited styling

non-illuminated



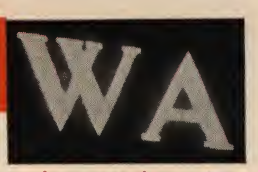
WELDED ALUMINUM
full channel

SOLID WELDED CONSTRUCTION

height	aluminum gauge	2" depth	3" depth	4" depth	6" depth
6"	.091	$10.20	$11.65	$12.30	....
8"	.091	10.95	12.10	14.30	....
10"	.091	12.90	14.30	16.45	....
12"	.091	17.10	18.45	19.75	....
15"	.091	21.75	23.00	24.70	....
18"	.091	26.35	27.65	29.60	....
20"	.091	29.35	30.60	32.80	....
24"	.091	34.70	36.85	38.75	$40.00
30"	.091	41.90	44.25	47.95	50.95
36"	.091	48.10	51.40	55.45	60.40
42"	.091	54.95	58.00	67.55	74.55
48"	.091	68.00	72.10	82.25	91.55

illuminated

WELDED ALUMINUM
with plexiglas faces



SOLID WELDED CONSTRUCTION

height	plexiglass thickness	no. tubes	4" depth	6" depth	8" depth
12"	3/16"	1	$34.50	$35.85	$37.00
15"	3/16	1	44.65	46.25	47.85
18"	3/16	1	57.95	59.95	61.80
20"	3/16	1	61.60	67.25	69.65
24"	3/16	1	75.40	78.95	82.85
30"	3/16	1	100.80	106.35	108.00
36"	3/16	1	118.00	124.10	127.90
24"	3/16	2	83.80	88.05	90.55
30"	3/16	2	112.25	116.65	119.45
36"	3/16	2	132.00	136.50	140.55
42"	3/16	2	....	169.80	173.25
48"	3/16	2	....	202.70	206.75



STAINLESS STEEL
full channel

CONTINUOUS SOLDERED CONSTRUCTION

height	metal gauge	2" depth	3" depth	4" depth	6" depth
6"	20	$11.55	$12.10	$12.70	$13.85
8"	20	13.30	15.00	16.15	19.65
10"	20	16.15	19.05	20.20	23.65
12"	20	19.05	21.35	23.65	28.85
14"	20	21.95	25.41	27.15	31.75
15"	20	24.25	26.55	30.05	34.65
16"	20	25.40	30.05	32.35	36.95
18"	20	28.90	34.65	36.40	41.60
20"	20	33.50	36.40	37.55	46.20
24"	20	42.75	46.20	49.65	57.75
30"	20	55.45	60.05	63.50	71.60
36"	20	67.00	73.90	80.75	87.80
48"	20	92.40	101.65	109.70	127.05

STAINLESS STEEL
with plexiglas faces



CONTINUOUS SOLDERED CONSTRUCTION

height	plexiglass thickness	no. tubes	4" depth	6" depth	8" depth
12"	3/16	1	$41.00	$44.50	$51.45
15"	3/16	1	54.20	59.15	67.85
18"	3/16	1	64.05	72.20	89.50
21"	3/16	1	75.35	82.25	99.60
24"	3/16	1	91.45	100.50	117.80
30"	3/16	1	123.25	137.15	157.90
36"	3/16	1	148.10	165.40	189.70
18"	3/16	2	71.80	82.05	97.30
21"	3/16	2	84.90	91.80	109.15
24"	3/16	2	101.85	110.90	128.20
30"	3/16	2	136.30	150.15	170.95
36"	3/16	2	163.70	181.00	205.25
42"	3/16	2	191.15	208.45	236.20

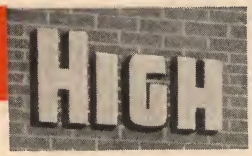


PORCELAIN ENAMEL
full channel

SPOT WELDED CONSTRUCTION

height	metal gauge	up to 3" depth one color	4 to 6" depth one color	8" depth	10" depth
8"	18	$16.20	$21.36	....	....
12"	18	19.80	23.50	....	....
16"	18	23.50	27.25	....	....
18"	18	25.80	29.50	....	....
20"	18	28.80	32.40	....	....
24"	18	32.88	37.20	$41.80	....
30"	16	40.30	45.35	50.20	....
36"	16	50.40	54.95	60.90	....
42"	16	58.55	63.10	69.25	....
48"	16	68.65	73.20	80.10	$100.40
54"	16	84.60	90.00	98.40	120.10
60"	16	102.00	108.00	120.15	144.90

WELDED ALUMINUM
back-lighted



SOLID WELDED CONSTRUCTION

height	aluminum gauge	no. tubes	3" depth	4" depth	5" depth
12"	.091	1	$26.20	$27.55	$29.00
15"	.091	1	33.15	34.15	36.25
18"	.091	1	39.70	41.10	43.15
20"	.091	1	42.90	45.25	49.75
24"	.091	1	50.35	52.35	52.70
30"	.091	1	59.00	62.85	66.70
36"	.091	1	69.40	73.65	77.90
42"	.091	1	81.25	84.40	93.90
48"	.091	1	97.60	101.90	112.60
54"	.091	2	135.40	140.90	153.30
60"	.091	2	155.75	163.70	177.15
72"	.091	2	211.75	222.20	242.90

FABRICATED LETTERS (NON-ILLUMINATED)

MOUNTING DETAILS / SPECIFICATIONS See on page 4

STYLES

Letters are priced on similar styles, as futura, gothic, kabel, broadway and symmetric. Special styles and designs may be had at additional cost.

MATERIALS & FINISHES

WELDED ALUMINUM letters are fabricated from .091 (11 gauge) thick high grade of sheet aluminum, solid welded construction, baked enamel or satin alumilited finish.

STAINLESS STEEL letters are fabricated from 20 gauge, type 302, 18-8 alloy, soldered construction, No. 4 polish finish.

PORCELAIN ENAMEL letters are fabricated from 16 & 18 gauge enameling steel, spot welded construction, porcelain enamel finish.

EXTRAS

Connected script, spurred and back enclosures of respective material—add 20%.
4" x 4" Conduit boxes Stainless Steel 6.00 per ft.
Welded Aluminum 4.00 per ft.
Furnish and mount letters to extruded aluminum channel $2.00 per foot.
Satin Alumilited Aluminum—add 25%

NO CHARGE

Necessary rust-proof hardware for normal installation, crated f.o.b. Greensboro, N. C.

FABRICATED LETTERS (ILLUMINATED)

MOUNTING DETAILS / SPECIFICATIONS See page 4.

Prices on illuminated letters include necessary neon, normal power factor 30 MA transformers, insulators and 7,500 volt high tension wiring.

STYLES, MATERIALS, FINISHES AND EXTRAS.

Same as non-illuminated letters.

For Mounting Details & Specifications turn to Page 4

© 1959 Andco Industries Corporation

KABEL STYLE NO. 122

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &

height	average width	stroke width	depth	baked enamel	satin alumilite	satin or oxidized bronze
4″	2¾″	¾″	⅜″	$3.10	$3.70	$3.95
5″	3½″	⅞″	½″	3.65	4.20	4.75
6″	4″	1″	½″	4.15	4.70	5.50
8″	5″	1¼″	⅝″	5.85	6.65	7.50
10″	7″	1½″	¾″	7.20	8.00	11.00
12″	8″	1 11/16″	¾″	9.60	10.70	12.75
14″	9″	1 15/16″	⅞″	11.50	13.00	16.00
16″	11″	2¼″	1″	13.75	15.75	19.00
18″	12″	2 7/16″	1⅛″	16.70	18.70	24.50
20″	14″	2¾″	1⅛″	20.45	22.45	31.50

BROADWAY STYLE NO. 222

ABCDEFGHIJKLMN
OPQRSSTUVWXYZ &

4″	3½″	1″–½″	½″	$3.30	$3.80	$5.00
5″	4½″	1″–7/16″	½″	4.00	4.50	6.00
6″	5½″	1¾″–⅝″	⅝″	4.90	5.40	7.00
8″	8″	2 3/16″–¾″	⅝″	6.00	6.75	9.00
10″	10″	3 1/16″–⅞″	¾″	7.60	8.35	11.00
12″	12″	3⅜″–1″	¾″	10.00	11.00	14.00
16″	14″	3 7/16″–1½″	1″	16.00	17.50	22.00
18″	16″	3½″–1 13/16″	1″	20.00	22.00	....
20″	16½″	3⅞″–1⅞″	1½″	26.00	28.00	....

ARCHITECTURAL STYLE NO. 333 (prismatic face)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ &

4″	4″	⅝″–⅜″	⅝″	$4.00	$4.50	$6.50
6″	5½″	⅞″–½″	⅝″	5.90	6.50	7.50
8″	7½″	1⅛″–⅝″	¾″	7.90	8.80	10.50
10″	9½″	1⅜″–⅞″	¾″	10.25	11.20	12.75
12″	11½″	1½″–¾″	⅞″	12.25	13.25	18.50
16″	15″	2¼″–1″	1″	18.00	19.50	26.00
18″	17⅛″	2⅝″–1¼″	1″	21.00	24.00	32.00
20″	18¼″	2¾″–1½″	1″	27.00	31.00	45.00
24″	21½″	2⅞″–1⅛″	1″	38.00	43.00	60.00

FUTURA STYLE NO. 444

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&

GOTHIC STYLE NO. 445

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&

4″	3¼″	¾″	½″	$3.40	$3.90	$5.00
5″	4″	1″	¾″	4.00	4.50	7.00
6″	5″	1⅛″	1″	5.75	6.25	10.00
8″	6½″	1¾″	1¼″	7.00	7.55	12.00
10″	8½″	2″	1½″	9.00	9.75	15.00
12″	10″	2⅛″	2″	13.10	14.10	25.00
14″	11½″	2½″	2″	15.50	17.00	....
16″	13″	3″	2 7/16″	19.60	21.60	....
18″	15″	3½″	2½″	23.00	25.00	....
24″	19¾″	5″	3″	34.00	38.00	....

RIBBON STYLE NO. 555

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&

2″	1½″	3/16″	½″	$2.30	$2.60	$3.30
3″	2″	¼″	9/16″	2.70	3.10	4.00
4″	3⅛″	¼″	¾″	3.40	4.10	5.00
5″	4¼″	¼″	¾″	4.00	4.60	6.00
6″	4½″	5/16″	⅞″	4.60	5.20	7.50
8″	5⅛″	⅜″	1″	6.00	6.60	9.50
10″	7⅛″	⅜″	1 1/16″	7.40	8.00	11.50
12″	8½″	7/16″	1½″	9.00	10.00	16.00
14″	10″	½″	1 15/16″	14.50	15.50	....
16″	12″	9/16″	2¼″	19.50	21.00	....

DEEP RIBBON STYLE NO. 556

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&

3″	2″	5/16″	1″	$3.25	$3.75	$4.50
4″	2¾″	⅜″	1⅛″	4.80	5.30	7.00
5″	3⅝″	7/16″	1 7/16″	6.00	6.60	9.00
6″	4⅛″	7/16″	1½″	7.00	7.60	10.00
8″	5⅛″	½″	1 13/16″	8.00	9.00	13.00
10″	7″	17/32″	2⅛″	9.40	10.70	15.00
12″	8″	⅝″	2 7/32″	12.25	13.50	22.00
15″	10½″	1 1/16″	2¾″	18.00	20.50	....
18″	13″	¾″	3″	26.00	30.00	....

SYMMETRIC STYLE NO. 666

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

6″	4″	1″	¾″	$5.40	$6.00	$9.00
8″	6″	1¼″	1″	6.20	6.90	11.50
10″	7″	1½″	1¼″	7.55	8.55	14.00
12″	8″	1¾″	2″	11.45	12.75	20.00
14″	10″	2″	2″	13.35	15.00	25.00
16″	12″	2⅛″	2¼″	16.75	18.75	....
18″	12″	2″	2¼″	19.00	22.00	....
18″	13″	2½″	2¼″	21.00	24.00	....

EMPIRE STYLE NO. 777

ABCDEFGHIJKLMNOPQRSTUVWXYZ&

ELOQUENT STYLE NO. 778

ABCDEFGHIJKLMNOPQRSTUVWXYZ&

6″	1⅜″	¼″	1½″	$6.30	$7.80	$12.80
8″	1⅞″	5/16″	1¾″	8.10	10.10	15.00
10″	2¼″	⅜″	2″	10.20	12.70	18.50
12″	2⅝″	7/16″	2¼″	13.40	15.90	22.00
14″	2¾″	9/16″	2½″	16.00	19.00	28.60

CAST ALUMINUM & BRONZE

MOUNTING DETAILS } See on page 4
SPECIFICATIONS }

STYLES

As shown herein are selected stock patterns most widely used by the architectural trade.

MATERIALS AND FINISHES

SATIN ALUMILITED letters are cast of No. 214 Alcoa Aluminum, faces are finished by continuous belt grinding and sides filed and ground smooth. Letters are then alumilited.

BAKED ENAMEL letters are cast of No. 43 aluminum, faces and edges ground smooth, letters are then etched and degreased to receive coats of aluminum Chromite primer and two coats of enameling paint baked on at 325° F.

OXIDIZED STATUARY BRONZE letters are cast of fine alloy (85% copper, 5% lead, 5% tin, 5% zinc) and oxidized to a statuary color and given a coat of exterior clean lacquer to protect the color.

ADDITIONAL FINISHES

Prices on request, Brite Alumilited Aluminum and Brite Satin Bronze.

EXTRAS

Furnish and mount letters to extruded aluminum channel, $2.00 per foot.

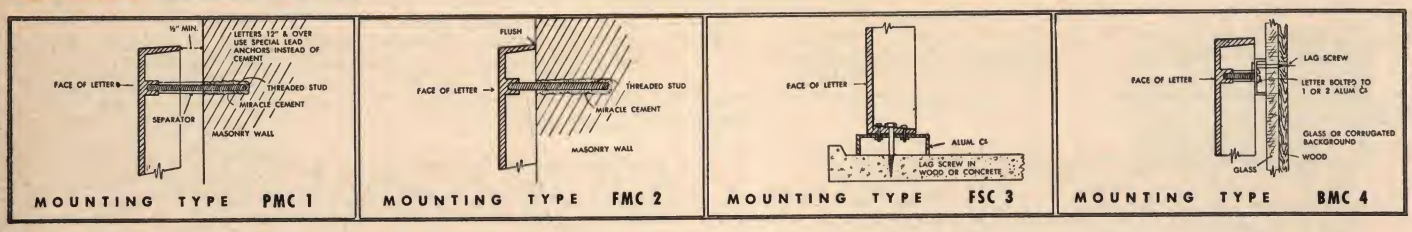
NO CHARGE

Necessary rust-proof hardware for normal installation, crated F.O.B. Greensboro, N. C.

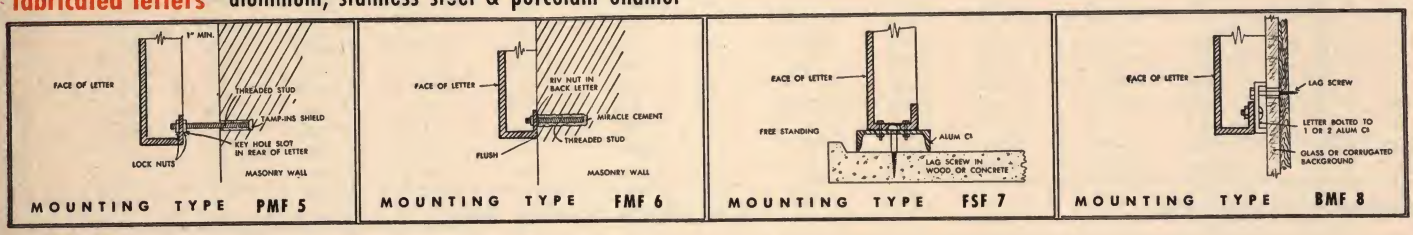
For Mounting Details & Specifications turn to Page 4

mounting details non-illuminated

cast letters—aluminum & bronze



fabricated letters—aluminum, stainless steel & porcelain enamel



specifications

cast letters

Cast *aluminum* letters shall be as manufactured by ANDCO PRODUCTS, 4620 High Point Road, Greensboro, N.C.

The letters shall be manufacturers No. *666, symmetric* style, *12"* high, *1¾"* stroke, and *2"* depth.

All letters to be cast of *#214 aluminum*, faces shall be finished by continuous belt grinding and sides filed and ground smooth. Letters shall receive *satin *alumilited* finish and erected by *WALL* mounting type *PMC* No. *1* in strict accordance of manufacturers instructions.

fabricated letters

Fabricated *aluminum* letters shall be as manufactured by ANDCO PRODUCTS, 4620 High Point Road, Greensboro, N. C.

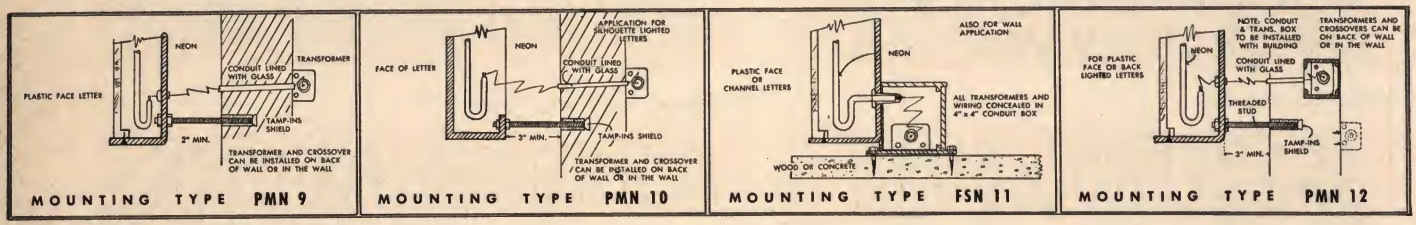
The letters shall be of design shown on drawing, fabricated from *11* gauge *enameling steel.*

The letters shall be *18"* high, *3"* stroke, and *4"* depth. *sheet aluminum* letters shall be *solid welded* construction, finish by continuous belt grinding and sides filed and ground smooth. Letters shall receive *baked on enamel* finish and erected by *WALL* mounting type *PMF* No. *5* in strict accordance of manufacturers instructions.

letter manufacturer shall submit 5 detail drawings for architect approval before fabrication. Manufacturer shall furnish the contractor with full size mounting details for positioning mounting hardware, one ANDCO INSTALLATION KIT with necessary cement, anchors, star drill and other hardware for a complete installation.

mounting details

illuminated plastic face and backlighted letters—aluminum, stainless steel & porcelain enamel



specifications

Fabricated *welded sheet aluminum* letters shall be as manufactured by Andco Products, 4620 High Point Road, Greensboro, N. C.

The letters shall be of design shown on drawings, fabricated from *.091 thickness sheet aluminum.*

The letters shall be *24"* high, *3"* stroke, and *4"* depth. *Sheet Aluminum* letters shall be *solid welded* construction, finish by continuous belt grinding and sides filed and ground smooth. Letters shall have *3/16" thick* ■plexiglas faces and illuminated by *2* tube of 15 mm neon. Letters shall receive *baked enamel* finish and erected by *WALL* mounting type *PMN* No. *12* in strict accordance of manufacturers instructions.

Write for free literature on:

1. Metal/Plastic Letters
2. Room Name & Number Plaques
3. Building Plaques
4. Building Directories

*PTD. BY ALUMINUM CO. OF AMERICA

■PRODUCT OF THE ROHM & HAAS CO.

6f
Ar



ARMENTO

L'Atelier Armento of Architectural Arts

A.I.A. File No. 15-R









Chapel of Christ the King, Canisius College. Duane Lyman & Associates, Architects. Papal Coat of Arms. Bronze 14″ x 20″. St. Andrew's Episcopal Church—Lectern. Gordon Hayes, Architect. Winged Prayer, Spire Ornament — Amherst Lutheran Church, Backus, Crane and Love, Architects.



armento architectural ARTS liturgical

L'ATELIER ARMENTO OF ARCHITECTURAL ARTS functions as Designer-Craftsman in collaboration with the architect to effect a fresh artistic treatment, lyrical and disciplined within the architectural concept.

Sculptured Spire, Westminster Presbyterian Church, Miami, Fla. Robert Fitch Smith, Architect.



MAIN ALTAR RAIL



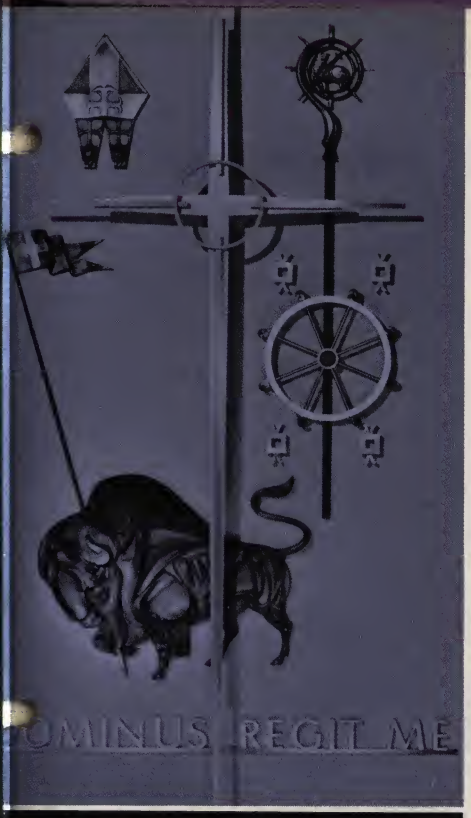
SIDE ALTAR RAIL

SAINT MARTIN'S R.C. CHURCH, Backus, Crane & Love, Architects.
Main Altar Rail, Side Altar Rails, and Baptistery Grille and Gates designed and executed by Armento Metal Arts Co.
All units are made of bronze extrusions and castings, panels are in black walnut.

ARMENTO METAL ARTS CO. 257 East Delavan Ave., Buffalo 8, N. Y.
Phone SUmmer 2211. NOTE: ALL PHONE INQUIRIES SHOULD BE MADE PERSON TO PERSON TO SALES MANAGER.

ARMENTO

sculpture



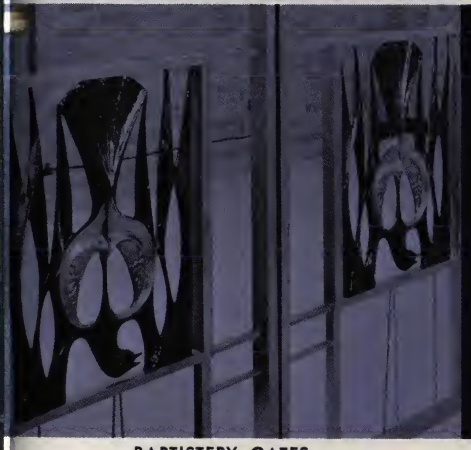
BISHOP'S HERALDIC INSIGNIA
Bishop Turner High School
Pauly, Hauck & Welch, architects
Note: Elements are derived from the Coat of Arms. Cross in aluminum, all other units are in bronze.
Size: Cross is 7 ft. high.



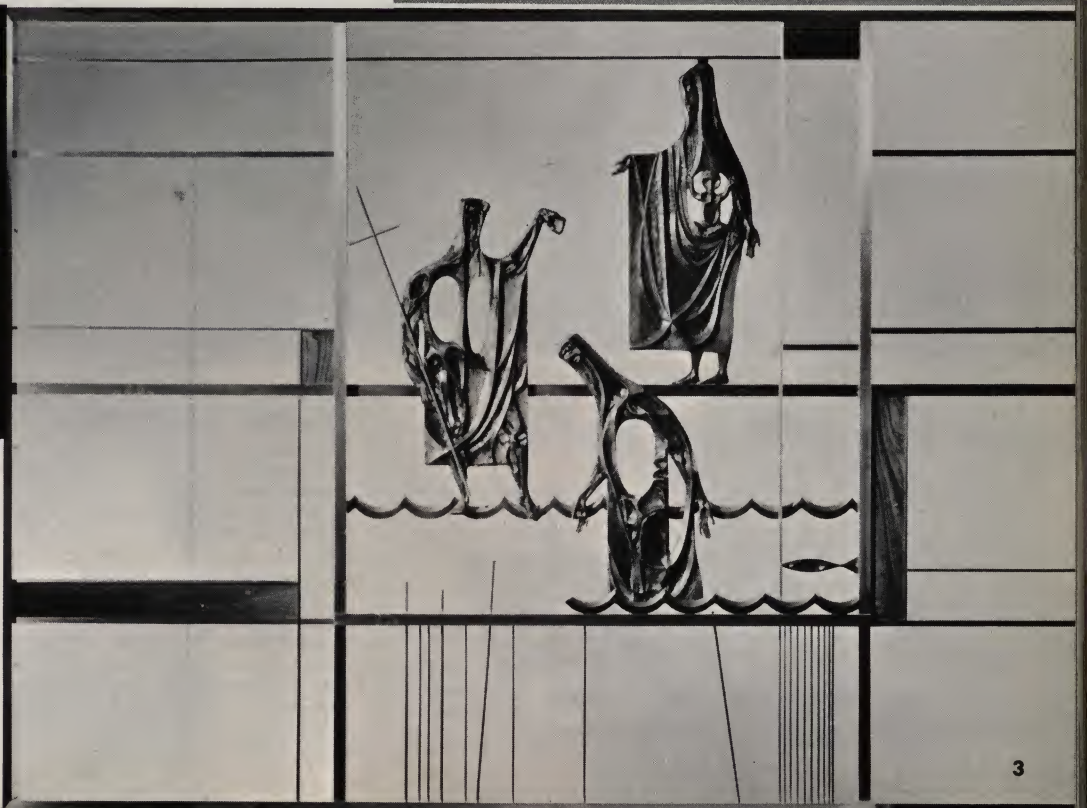
TRADE MARK
Marine Trust Co. Office Bldg., Niagara Falls, N. Y.
Cannon, Thiele, Betz and Cannon, Architects
Note: Size: 36" in total height, Aluminum Casting.



OUR LADY OF FATIMA
Architectural Sculpture
Note: Size, Madonna is 41" high. Available in bronze or aluminum castings.



BAPTISTERY GATES
ST. MARTIN'S



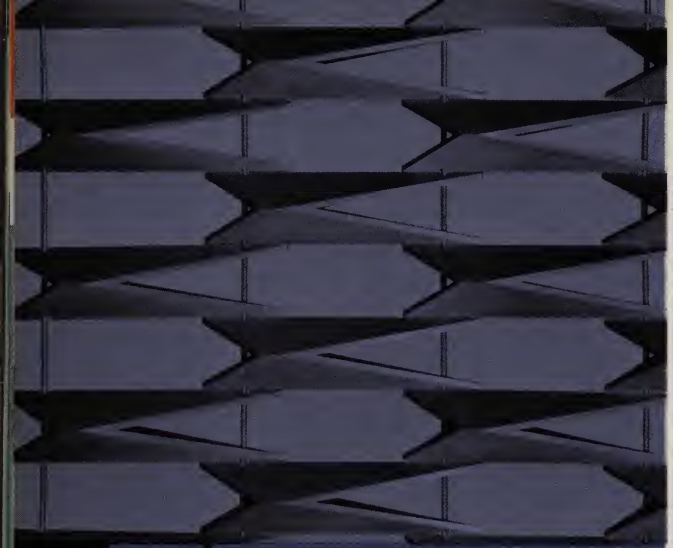
BAPTISTERY GRILLE
ST. MARTIN'S

armento

architectural ARTS

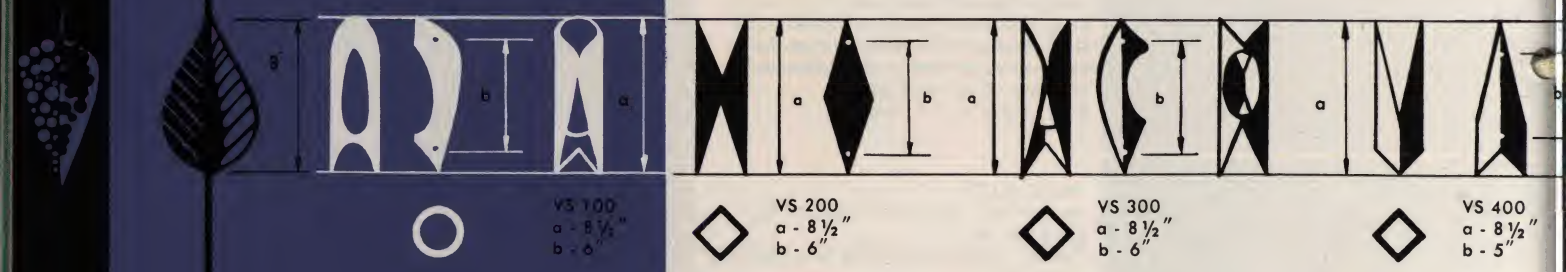
sculptured modulants and screens

The Armento SCULPTURED MODULANTS®* are an architectural solution to the human necessity for color, for texture and for form—rationalized to a machine-age culture and utilizing its technologies. The variations and original treatments are infinite. Their freshness and vitality generate from their sculptural qualities.



Bryan Building & Loan Association, Bryan, Texas.
Architect: William E. Nash, A.I.A.
Description: Sculptured Modulant Screen, Model VS 200M, 1½" sq. x 8½" long set in panels 3 ft. x 7 ft.

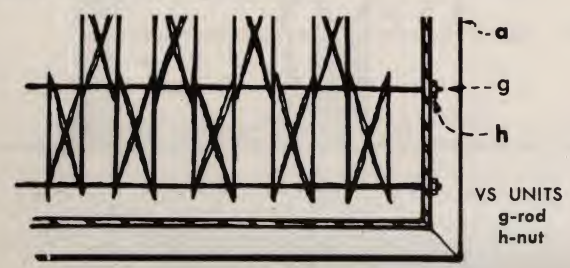


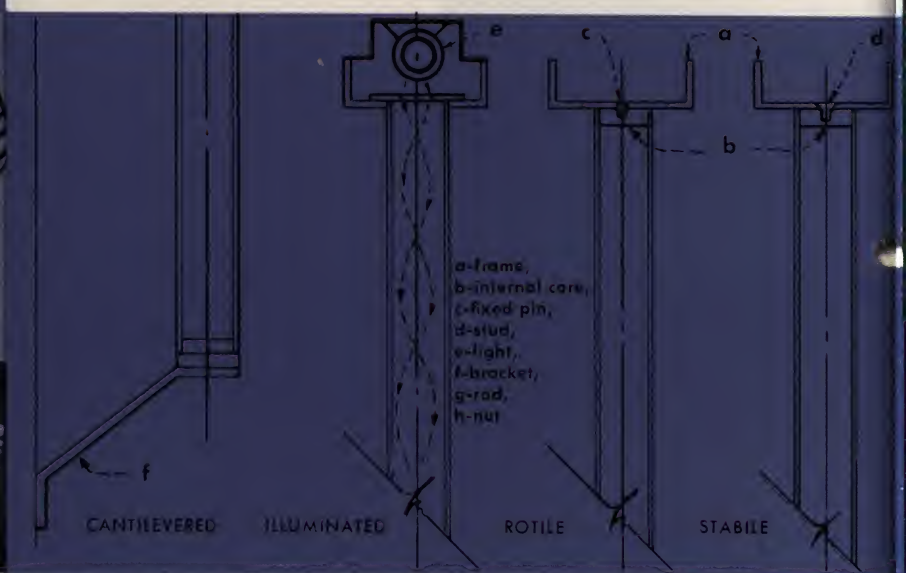


VS series offers complete flexibility of effect—and size. The shapes are delightful, and the final size of the screen or sculpture is determined by the number of units assembled.



Screen of Cast Modular Units — Wheat and Grape Motif.
Grape units — width 5⅜" x length 9" min. to 24" max.
Wheat units, width 5", length 9" min. to 24" max.
Obtainable in cast bronze or aluminum, or baked enamel on aluminum. Other designs on request.



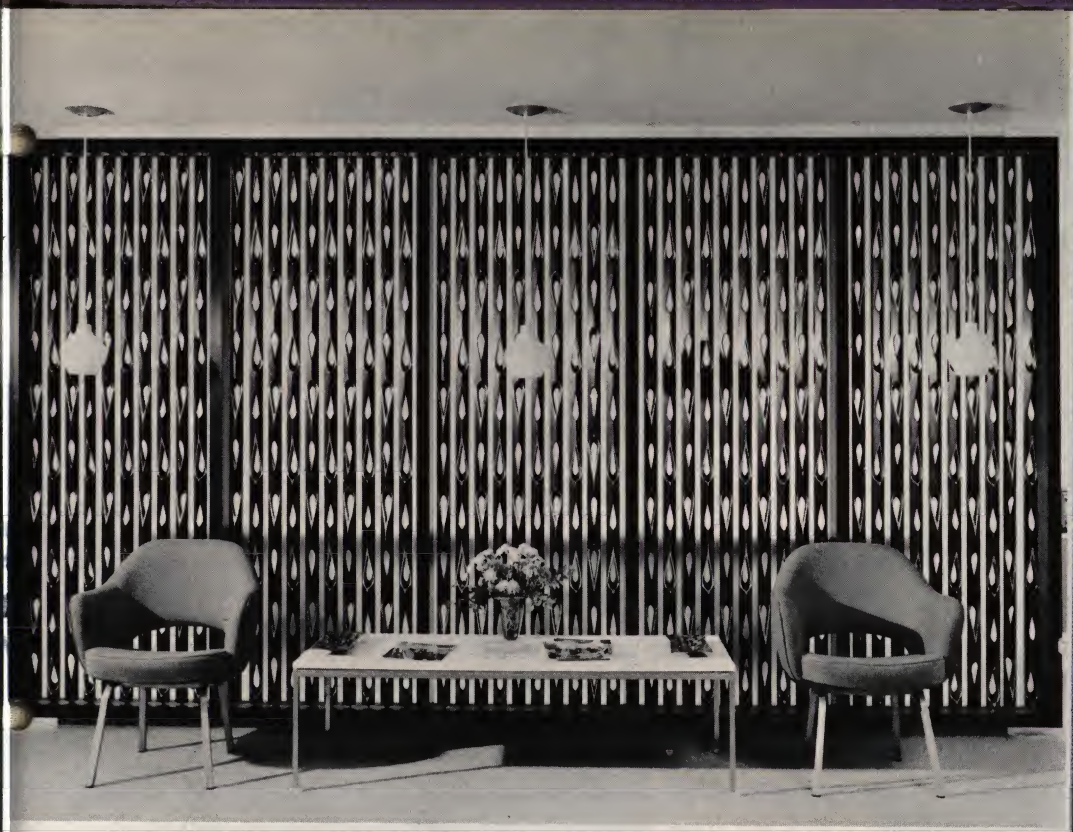


ASSEMBLY, MOUNTING & OTHER DATA FOR JMS & VS UNITS

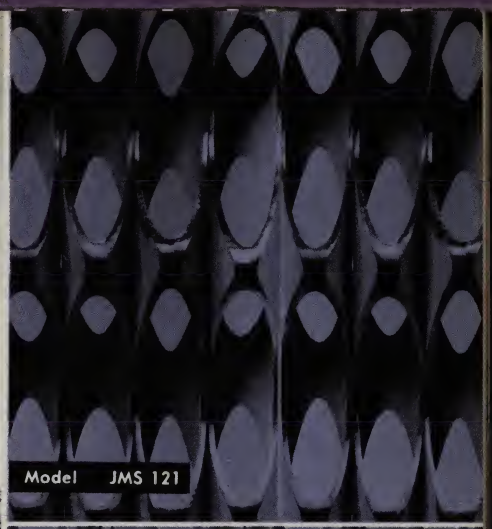
All units are shipped KD or fully assembled. Frames are made of materials specified (wood, metal, plastic) or units can be mounted on rods, or other supports.
Types of mounting:
1. Stabiles—Mounted in fixed position for Models VS and JMS.
2. Rotiles—Mounted for manual or mechanical rotation—model JMS only.
3. Illuminated—For stabiles or rotiles—for peripheral or internal lighting.
4. Cantilevered—For stabiles or rotiles.
5. VS Units—Individual basic units.

Finishes: Satin; Polished; Matte; and Selective Finishes which are a combination of finishes to give linear and sculptural definitions and achieve variegations of light reflections.
Color: Anodized for short lengths, or baked enamels for all lengths.
Density: the number of Sculptured Modulants placed side by side. This may vary based on design requirements.

ARMENTO METAL ARTS CO. 257 East Delavan Ave., Buffalo 8, N. Y.



Godfrey L. Cabot, Inc., Reception Area, Boston, Mass.
Interior Designers: Rodgers Associates, New York, N. Y.
Description: Sculptured Modulant Screen, Model JMS 612,



Model JMS 121



Model JMS 612



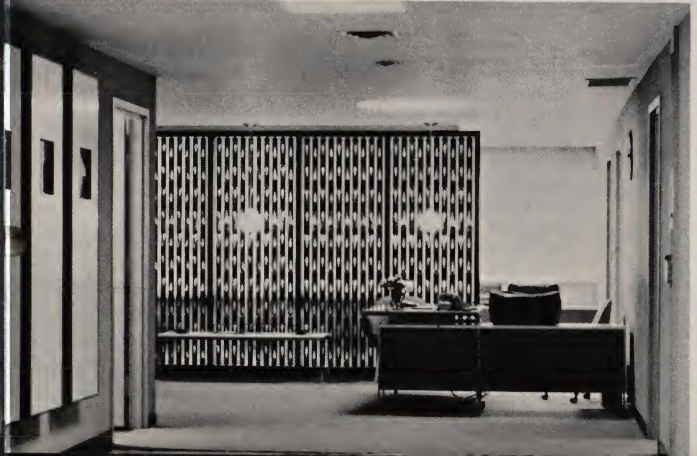
APPLICATIONS—Partial List
Screens: Movable and Stationary — space dividers, light diffusers, dwarf partitions, Ceilings: Fixed and Floating — baldaquins, testers, free forms, Columns (not structural): Grouped and Colonnades—for interior and exterior fountains and gardens, foyers, Grilles and Louvres; Other Uses: abstract sculptural forms, "Patterned Light" (stained glass concept), light fixtures, etc.

MATERIALS AND SIZES
Materials: Aluminum or Bronze Tubing

Model	Shape	Size—dia.
JMS 612	square	1½", 2"
JMS 121	round	1½", 2", 2½"
VS	sq. or round	1½"

Models: JMS lengths 1′ to 10′; VS 8½". Other sizes and lengths on application.



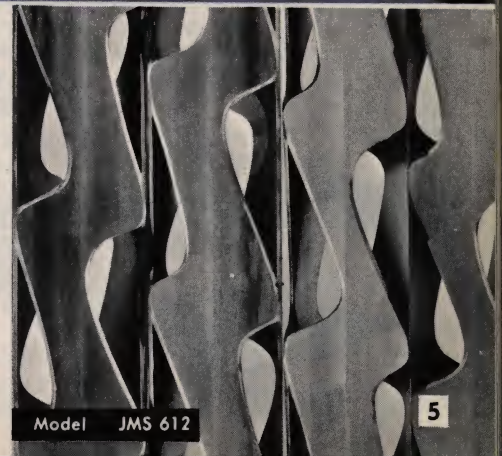


HOW TO SPECIFY: It is suggested that the following be noted: Use; Model No.; overall dimensions; colors desired, and other pertinent data.

Specifications: ARMENTO SCULPTURED MODULANTS

Furnish and install Armento Sculptured Modulant Model No....., for (use and location)..... (other information, color, etc.) They are to be installed in accordance with directions of the manufacturer, the Armento Metal Arts Company, 257 E. Delavan Ave., Buffalo 8, New York, and sold with certificate of registration for each installation.

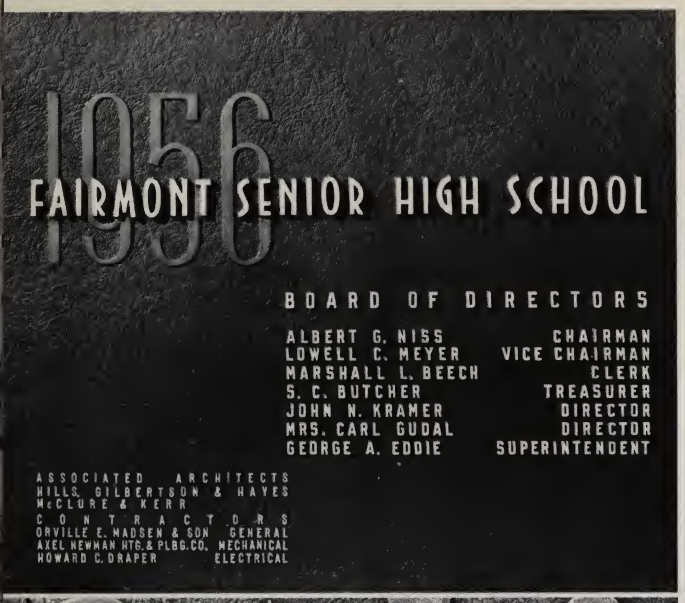
*Patents Pending ®Registered Trademark

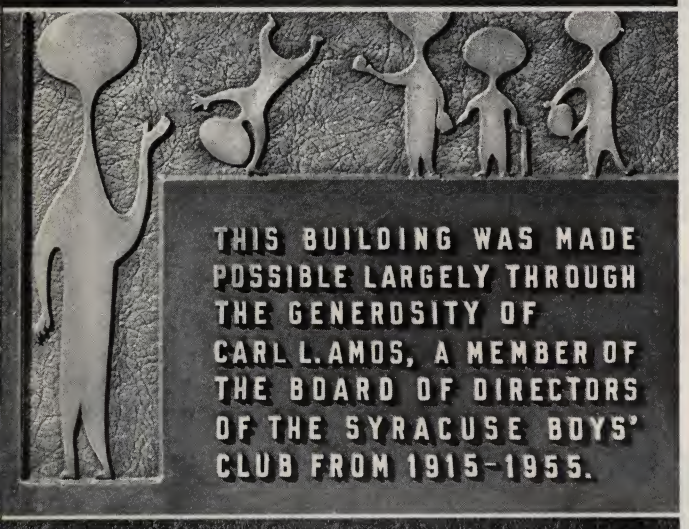


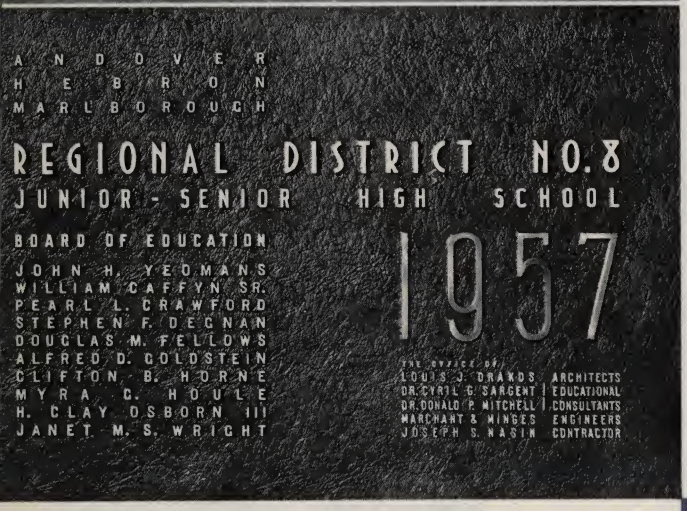
Model JMS 612

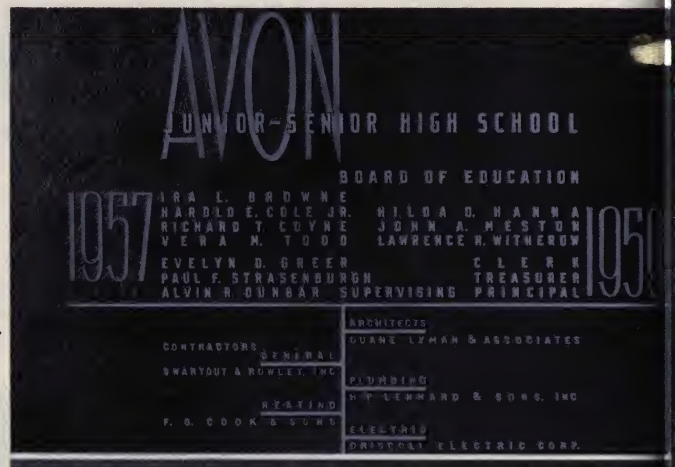
long specification form

Tablet, bronze (aluminum). The contractor shall furnish and install (number) bronze, (or aluminum) tablet(s) manufactured by the Armento Metal Arts Company, 257 E. Delavan Avenue, Buffalo 8, N. Y. The tablet(s) shall be.....x.....(approximate size) and shall contain .....(approximate number) letters. (Note: for school work the approximate number of letters is generally around 300.) Final inscription and general layout will be furnished by the architect at a later date. This contractor shall furnish the necessary shop drawings or "rubs" for approval. The casting shall be free from all casting defects. The face of border and letters shall be polished; the entire tablet shall be hand chased; the background shall be properly finished and oxidized; and the entire tablet shall be sprayed with lacquer or other approved oxidation retardant. All holes shall be drilled for attachments. Rosettes and other accessories for attachment to wall surface shall be furnished by ARMENTO.







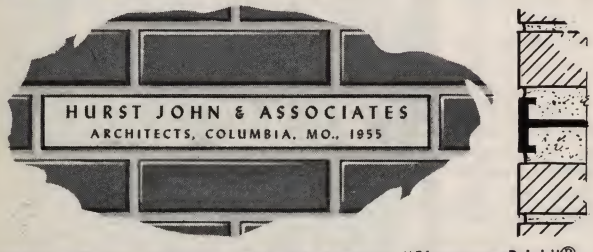


AVON JUNIOR-SENIOR HIGH SCHOOL
Duane Lyman & Associates, Architects



OVID MUNICIPAL BLDG.—John C. Ehrlich, Architect

FAIRMONT SENIOR HIGH SCHOOL
Associated Architects: Hills, Gilbertson & Hayes—McClure & Kerr
SYRACUSE BOYS' CLUB—Architects: Carl W. & R. T. Clark
REG. DIST. No. 8 JUNIOR-SENIOR HIGH SCHOOL
Louis J. Drakos, Architect



Identify all your buildings with the Armento "Signature Brick"®

signature brick®

SPECIFICATION FORM:
The contractor shall furnish and install .....(number).....(bronze or aluminum) Armento Signature Brick(s).....(size: single, double or roman brick) as manufactured by Armento Metal Arts Co., 257 East Delavan Ave., Buffalo 8, N. Y.
® Reg. Trademark

short specification form

Tablet, bronze (aluminum). The contractor shall include in his proposal the allowed sum of $..... to be expended by the architect for the purpose of the tablet. The contractor shall install same as directed at his expense. Note: Short specification, which includes a fixed allowance (usually $300 to $500) for the tablets, permits maximum latitude in design and assurance of excellent craftsmanship. Many architects, recognizing these advantages, are adopting the short specifications.

We shall be pleased to cooperate with you in establishing a design and to submit a tentative proposal to conform to the budgetary requirements.

ALL TABLET AND OTHER DESIGNS ARE PROTECTED BY COPYRIGHTS AND PATENTS AND MAY NOT BE REPRODUCED WITHOUT OUR PERMISSION.

armento

architectural ARTS

metal letters
symbols

SCREENS OF SYMBOLS — For space dividers, partitions, grilles, screens, decorative railing and stair railing panels.

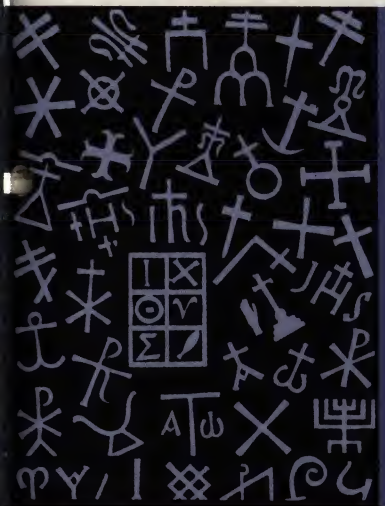
RAILING PANELS

#3-C Chemical Symbols inches scale

Information for Screen Specifications:

Design: Made to order with the symbols shown, or special symbols.
Shape and Size: Rectangular or free form.
Materials: Cast or plastic panels may be framed in wood or metal to fit conditions.
Color: Cast screens—colors of metal, oxidized or baked enamel; Plastic—transparent, translucent or opaque.

#1-L Liturgical Symbols



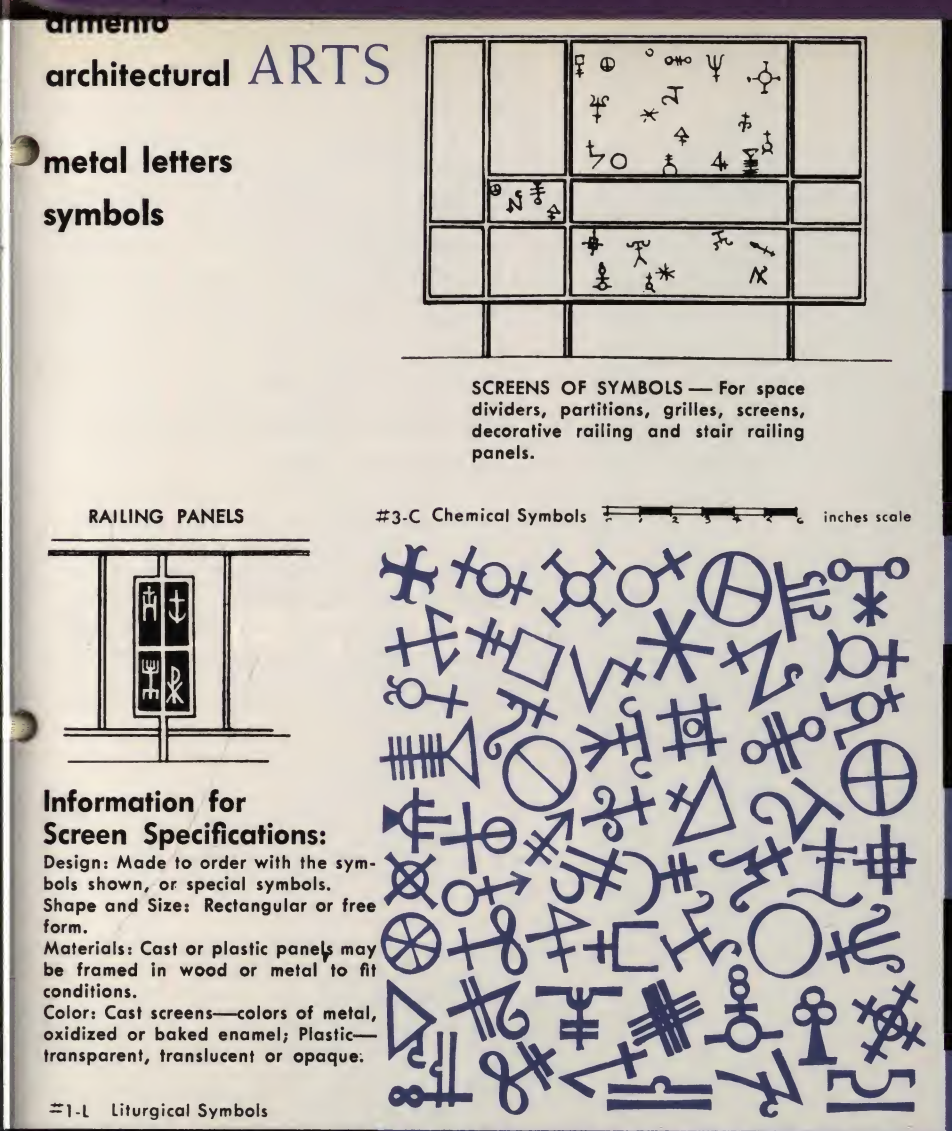
symbols, signs & western brands

. . . are versatile Design Tools—pliable and responsive to the creative sensitivity of the designer. The units can be used singly or in massed groupings for grilles, screens, murals and for embedding in terrazzo, etc.

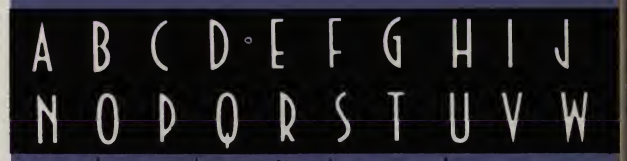
DATA: 3 basic Sets are shown here: L - Liturgical, 38 units; A & B - Astronomical & Botanical, 41 units; C - Chemical, 58 units. WB - Western Brands, available on request. Size: 2" average, ¼" thick. Materials: cast bronze or aluminum. Finish: satin or baked enamel. Attachment, by adhesives or prongs. Specials on request.

Sold only on certification of architects or accredited designers.

Specifications: ARMENTO SYMBOLS (INDIVIDUAL UNITS) Furnish and install where directed.....(no. of units, or sets) 2" (bronze or aluminum).....(finish—satin or baked enamel) to be attached by.....(adhesive or prongs) manufactured exclusively by Armento Metal Arts Co., 257 East Delavan Avenue, Buffalo 8, N. Y. and sold with certificate of registration for each installation.



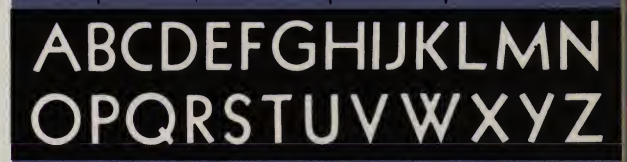
HIGH	AVERAGE WIDTH	WIDTH OF STROKE	THICKNESS	
6"	3¾"	⅜" & 5/16"	1"	COLUMBIA
8"	5"	¾" & 7/16"	1¼"	
10"	6¼"	⅞" & ½"	1½"	
12"	7½"	1" & ⅝"	1¾"	



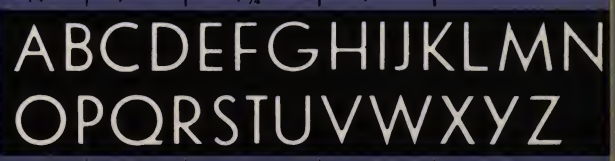
3"	1"	¼" or 5/16"	½"	VERNONPORT
4"	1 3/8"	¼" or ⅜"	⅝"	
6"	2"	¼" or ⅝"	¾"	
8"	2¾"	⅜" or ⅞"	⅞"	
10"	3⅜"	½" or 1"	1"	
12"	4"	⅝" or 1⅛"	1¼"	



6"	5"	1¼"	¾"	FUTURA
8"	6½"	1¾"	¾"	
10"	8¼"	2⅛"	1"	
12"	9¾"	2½"	1"	
14"	11½"	3"	1¼"	
16"	13"	3¼"	1½"	



5"	3½"	¾"	½"	KABEL
6"	4"	⅞"	½"	
8"	5"	1¼"	¾"	
10"	7"	1½"	⅞"	
12"	8"	1⅝"	1"	
14"	9"	1¾"	1"	



6"	4"	½"	1⅛"	RIBBON
8"	5"	½"	1½"	
10"	7"	⅝"	1½" & 2"	
12"	8"	¾"	1½" & 2½"	
14"	9"	¾"	1½" & 2½"	

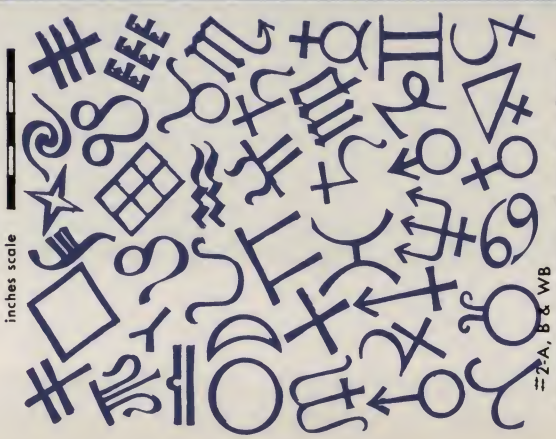
standard letters—cast and stainless steel —flat face

All our letters are made of the proper alloys of bronze, aluminum or stainless steel to withstand outdoor use. Superior Finish: the faces of all letters are satin finished, the edges finish sanded; and the letters receive a protective coating of acrylic base lacquer.

CUSTOM DESIGNED LETTERS made from your designs cost very little more than stock designs.

Specification for Screens of Symbols:

Furnish and install Armento Metal Arts SCREENS OF SYMBOLS as follows: Quantity..... Sizes (give each if different) ..... Material..... Construction..... Color..... All units shall be manufactured by Armento Metal Arts Co., 257 East Delavan Avenue, Buffalo 8, N. Y., in accordance with approved designs.



#2-A, B & WB Astronomical, Botanical & Western Brands

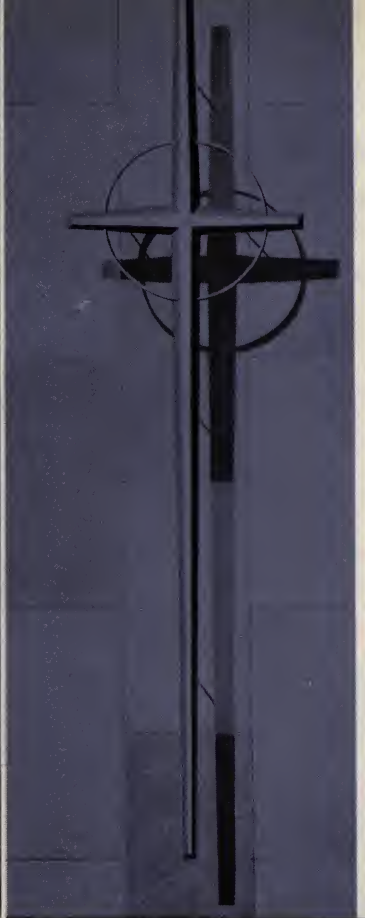
specification form for letters:

The contractor shall furnish and install....." (size), ... (style) ..... (bronze, aluminum or stainless steel) letters manufactured by Armento Metal Arts Co., 257 East Delavan Avenue, Buffalo 8, New York, and shall bear the manufacturer's trade mark and code number. The inscription shall read..... The letters shall be.....(flush, projected, or on a bar) mounted, where shown on the drawings, in accordance with manufacturer's recommendations.

WRITE FOR "DESIGN TOOLS" BOOK 1 FOR MEANING OF SYMBOLS AND OTHER DATA.



Bronze and Ebony Cross (10'9" high)
JESSIE BALL DuPONT CHAPEL
Hollins College, Hollins, Va.
Frantz & Addkison, Architects



Custom Made Bronze Wall Cross (14' high)
NORTH PRESBYTERIAN CHURCH
Williamsville, New York
Gordon Hayes, Architect

material

Hollow tapered aluminum tubing of 6063-T6 aluminum, tensile strength 35,000 psi; heat treated and age hardened for architectural value; satin brushed and waxed finish.

installation

As cross installations may affect other trades, it is suggested that connection details be furnished by us for co-ordination with other trades. For steeple installations, the Architect should include in his Electrical Specifications provisions for properly grounding the cross against damage by lightning.

specification form

Furnish and erect, where shown on drawings on Armento Tapered Aluminum Cross, Type.....(give type no.).....
(state whether plain, with halo or with halo and rays). The cross shall be installed in accordance with approved drawings of Armento Metal Arts Company, 257 East Delavan Ave., Buffalo 8, N. Y.
Examples: A 20 ft. exposed height cross for steeple installation with halo and rays should be specified as type S-20 with halo and rays. A 15 ft. cross for wall installation with halo only should be Type W-15 with halo. A 40 ft. exposed height cross for ground installation without halo and rays should be Type G-40 plain.

custom crosses

ARTS

Armento is pleased to co-operate with the architect or designer and assist in arriving at a custom design which is not only esthetically correct but will conform to the budgetary requirements. The designer is encouraged to make use of the table of Recommended Dimensions For Optical Corrections under Standard Crosses as a starting point for his custom designs.

the armento round tapered aluminum cross

A carefully designed contemporary cross proportioned for optical correction. It can be easily specified and purchased by symbol and number for any type of installation.
The architect is free to use this cross as a standard altering the suggested relationship between the cross arms and upper arm, the size of halo and design of ray, etc. but is requested to consult us before finally detailing and specifying.

RECOMMENDED DIMENSIONS FOR OPTICAL CORRECTION

Cross Type	Steeple		Ground				Wall			
Cross Number	S10	S20	G20	G30	G40	G50	W15	W20	W25	W30
Vertical Shaft										
Height With Upper Arm	10'	20'	20'	30'	40'	50'	15'	20'	25'	30'
Butt Diam.	3½"	5"	5"	6"	8"	10"	2⅞"	2⅞"	2⅞"	3½"
Top Diam.	2⅜"	3¼"	3¼"	3½"	3½"	4"	3⅜"	3½"	4"	4½"
Intersection Diam.	2⅞"	4⅛"	4⅛"	4⅞"	5⅜16"	6¼"	4½"	4½"	5"	6"
Upper Arm	2' 6"	5' 0"	5' 0"	7' 6"	10' 0"	12' 6"	3' 9"	5' 0"	6' 3"	7' 6"
Horizontal Arms										
Intersection Diam.	2⅞"	4"	4"	4½"	4½"	5⅜16"	4"	4"	4½"	5⅜16"
End Diam.	2⅜"	3¼"	3½"	3½"	3½"	4"	3"	3¼"	3½"	4¼"
Arm Length Each	1' 3"	3' 6"	3' 6"	5' 3"	7' 0"	8' 9"	2' 7½"	3' 6"	4' 1½"	5' 3"

ARMENTO METAL ARTS COMPANY 257 EAST DELAVAN AVE., BUFFALO 8, N. Y.,
Phone SUmmer 2211. NOTE: ALL PHONE INQUIRIES SHOULD BE MADE PERSON TO PERSON TO SALES MANAGER.

ALUMINUM

ART IN BRONZE

NICKEL SILVER



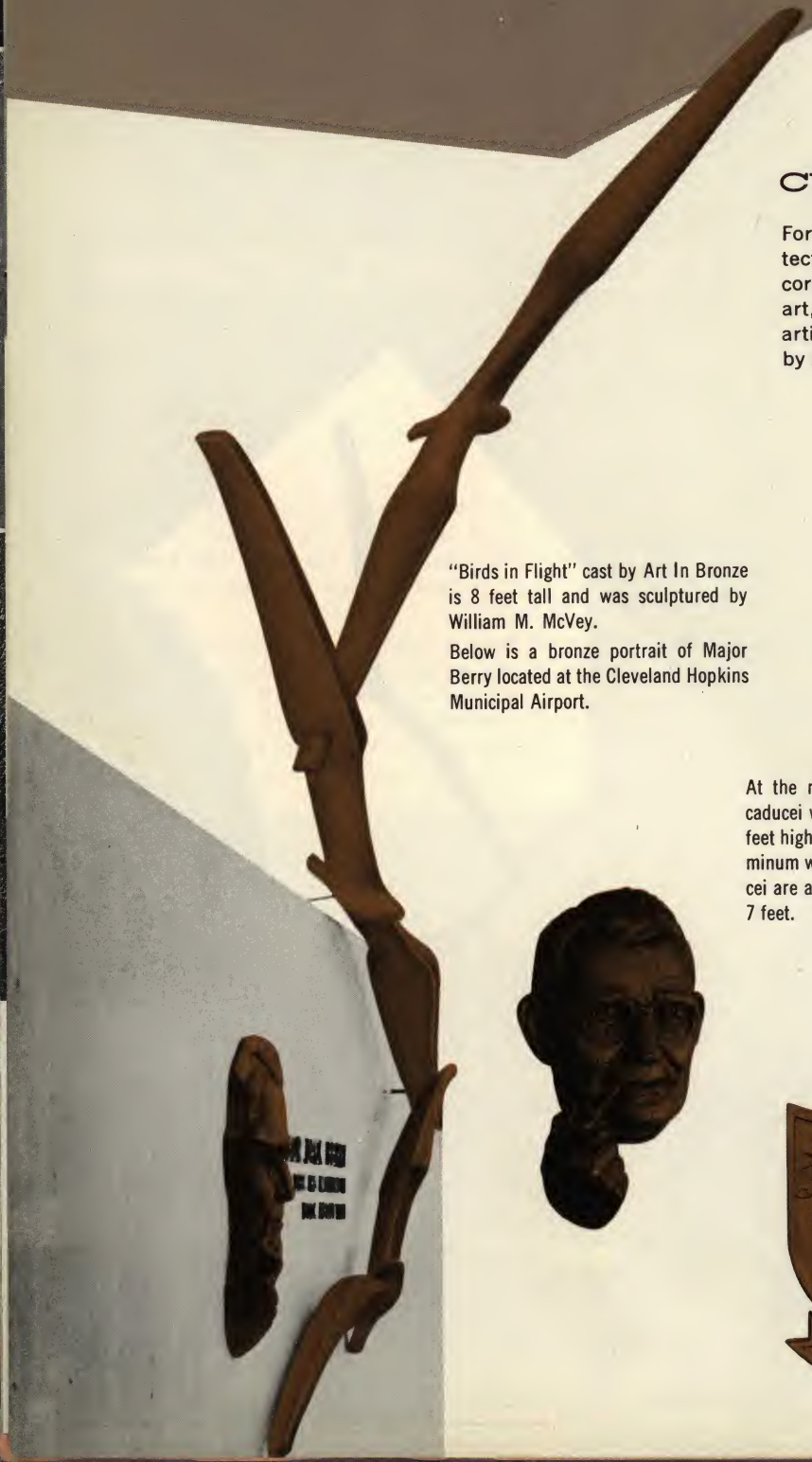
ART IN BRONZE Company, Inc.

1623 East 41st Street, Cleveland 3, Ohio
HEnderson 1-6200

THE Art In Bronze Company has been in business over 50 years, serving the requirements of architects, engineers, and general contractors. Today our ornamental work can be found in every part of the nation and is a tribute to our high standards of craftsmanship.

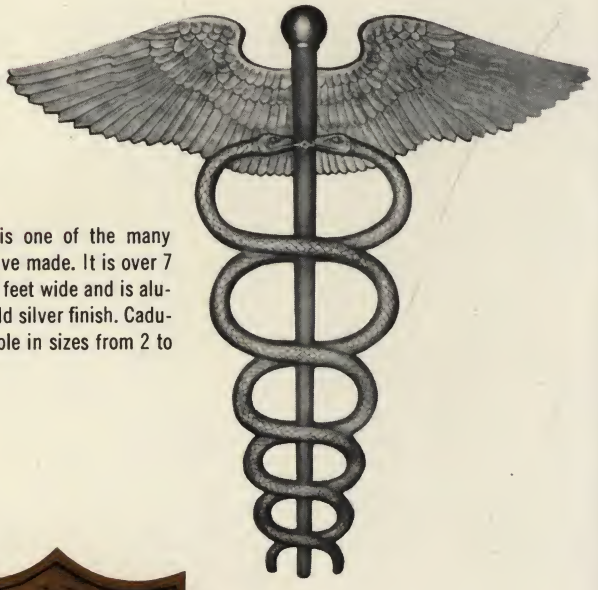
CUSTOM DESIGN

For years the Art In Bronze Company has been working with architects, designers and sculptors in order to produce esthetically correct castings. In order to produce these monumental works of art, we have at our command, the services of some of the leading artisans in the country. See page 8 for other custom metal work by Art In Bronze.



"Birds in Flight" cast by Art In Bronze is 8 feet tall and was sculptured by William M. McVey.

Below is a bronze portrait of Major Berry located at the Cleveland Hopkins Municipal Airport.



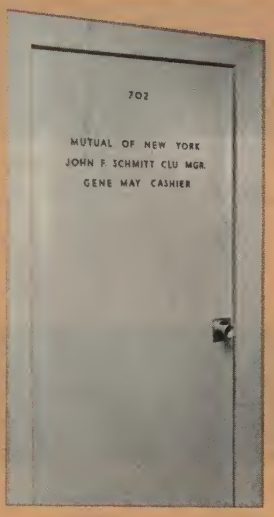
At the right is one of the many caducei we have made. It is over 7 feet high by 7 feet wide and is aluminum with old silver finish. Caducei are available in sizes from 2 to 7 feet.

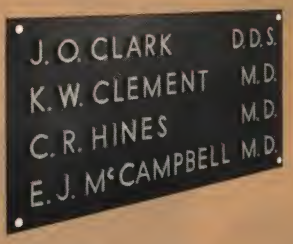


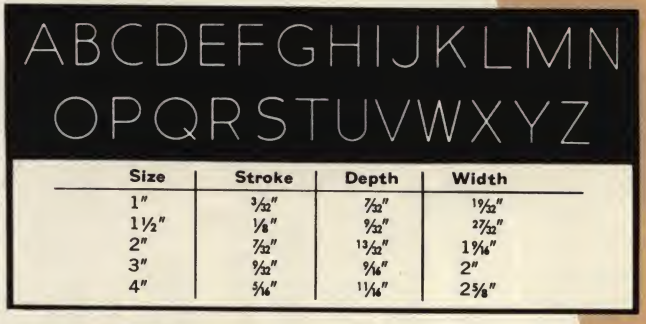
At the left is a special plaque presented to the officers of the U.S.S. Manley.

OFFICE MODERN

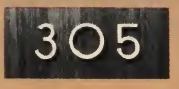
Office Modern is a new letter which has been especially designed in both Aluminum and Bronze for the contemporary office building. It can be applied to walls, or to steel, wood and glass surfaces. It is applied by our special mastic. These letters have a polished face and black anodized or oxidized sides and are also available in any color. We can also supply these letters drilled and tapped for installations where mastic is not advisable.

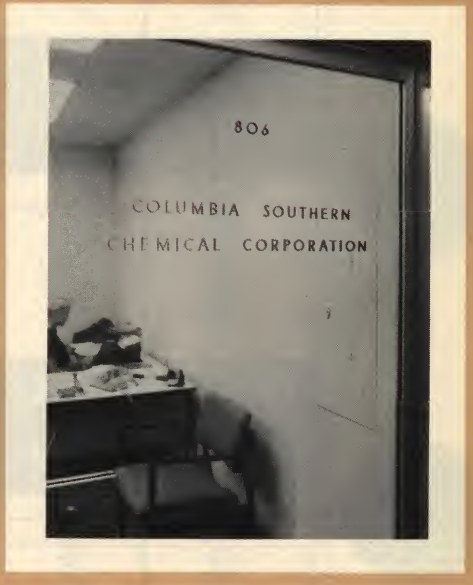






Size	Stroke	Depth	Width
1″	3/32″	7/32″	19/32″
1½″	1/8″	9/32″	27/32″
2″	7/32″	13/32″	1 9/16″
3″	9/32″	9/16″	2″
4″	5/16″	11/16″	2 5/8″













short form specifications

All names and numbers on doors as indicated on the drawings or in the door schedule, and on other wall areas where small free-standing letters are shown shall be composed of "Office Modern" aluminum (bronze) letters as manufactured by ART IN BRONZE COMPANY, INC., 1623 East 41st Street, Cleveland 3, Ohio.
Letters shall be _____ inches high and shall have (specify one of following: (1) polished face, (2) baked-on enamel finish in color as selected, (3) polished face with sides in baked-on enamel in color as selected).

ALUMINUM and BRONZE LETTERS (up to 48")

broadway

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
6"	1½"- ½"	½"	5½"
8"	⅞"-2¼"	⅞"	7¼"
10"	2¾"-1"	1¼"	9"
12"	3" -1¾"	1¾"	11"



modern block

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
3"	½"	½"	2"
4"	⅝"	⅞"	3"
6"	¾"	1"	4½"
8"	¾"	1"	6"
10"	1¾"	1½"	7½"
12"	1¾"	1½"	10"
16"	2½"	1½"	12"
18"	3"	2"	15"
20"	4"	2¾"	17"



prismatic

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
3"	½"- ¼"	¾"	2½"
4"	⅝"- ⅜"	¾"	3½"
6"	⅞"- ½"	¾"	5½"
8"	1" - ⅝"	½"	7½"
10"	1¼"- ⅝"	¾"	9½"
12"	1½"- ¾"	¾"	11½"
18"	2½"-1¼"	¾"	17"
20"	2⅞"-1"	¾"	18"



futura

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
2"	7/16"	½"	2"
3"	⅝"	½"	2½"
4"	⅞"	¾"	3¼"
6"	1¼"	¾"	5"
8"	1¾"	1¼"	6½"
10"	2¼"	1½"	8"
12"	2½"	1¾"	9¾"
15"	2½"	2"	12½"
16"	3¼"	2¼"	13"
18"	3⅞"	2½"	15"
20"	5"	3"	17"



Abbott

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z &

height	stroke	depth	av. width
6"	⅜"	1⅛"	2"
8"	½"	1½"	2⅜"
10"	⅝"	1⅞"	3⅓"
12"	¾"	2¼"	4"



installation details



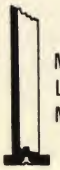
FM-1 Flush Mounted on Brick or Masonry Wall.



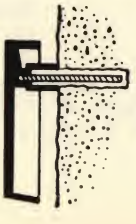
FM-2 Flush Mounted to Structural Glass.



FM-3 Mounting for inaccessible wood backgrounds.



BM-4 Mounting Metal Letters on a Metal Base.



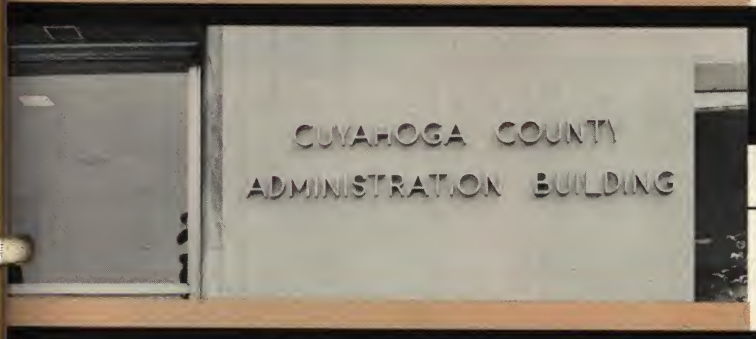
PM-8 Projected Mounting to Masonry.



kabel

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
2″	1/4″	1/4″	1 1/2″
3″	3/4″	1/2″	2″
4″	7/8″	1/2″	2 3/4″
6″	7/8″	1/2″	4″
8″	1 1/4″	5/8″	5″
10″	1 1/2″	1/2″	7″
12″	1 3/4″	3/4″	8″
15″	2″	3/4″	10″
18″	2 1/4″	1″	12″
20″	4″	2 3/4″	14″



ribbon narrow

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
2″	3/16″	3/8″	1 1/2″
4″	1/4″	3/4″	3″
6″	5/16″	3/4″	4 1/2″
8″	3/8″	1″	6″



ribbon wide

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
2″	3/16″	3/8″	1 1/2″
4″	3/8″	1 1/8″	2 3/4″
6″	1/2″	1 1/2″	4″
8″	1/2″	2″	5″
10″	1/2″	2 1/2″	7″
12″	1″	2 1/4″	9″
16″	1″	2 1/2″	12″
18″	1″	3″	14″
20″	1″	4″	16″



oval face

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
4″	5/16″ - 3/8″	3/8″	3 1/2″
6″	7/8″ - 1/2″	3/4″	5 1/2″
8″	1″ - 5/8″	1/2″	7 1/2″
10″	1 1/4″ - 5/8″	3/4″	9 1/2″
12″	1 1/2″ - 3/4″	3/4″	11 1/2″
18″	2 1/2″ - 1 1/4″	3/4″	17″
20″	2 1/8″ - 1″	3/4″	18″



sans serif

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	stroke	depth	av. width
1″	3/32″	7/32″	19/32″
1 1/2″	1/8″	9/32″	27/32″
2″	7/32″	13/32″	1 9/16″
3″	9/32″	9/16″	2″
4″	5/16″	11/16″	2 5/8″
6″	3/8″	1″	4″
8″	13/32″	1 1/4″	5 5/16″

short form specifications

The letters shall be cast as manufactured by ART IN BRONZE COMPANY, INC., 1623 East 41st Street, Cleveland 3, Ohio. Letters shall be ( ) inches high; ____ inch stroke; and ____ inches in depth; Style shall be_____.

Letters shall be cast of certified No. S-214 alloy aluminum ingots. The casting surface shall be free of all imperfections. The letter faces are to be ground smooth and buffed to a mirror-like or satin finish and edges are to be filed and ground smooth.

Alumilite finish No. 704 shall be applied by a licensed Alumilite finisher.

Erection of letters to be done by _____ method (see fastening methods).

ALUMINUM and BRONZE TABLETS

IS YOUR NAME IMPORTANT?

If it is, our tablets are cast of pure ingot with over a half century of fine craftsmanship to our credit. They are hand chased and the backgrounds are hand mottled. Art In Bronze plaques are custom works of art and are not to be identified with tablets where price is the major factor.

The tablets pictured here are available in any size from 10 square inches to 3000 square inches. We have thousands of patterns and many hundreds of different borders available. Shown here are only a few of our creations in Bronze and Aluminum. We will be glad to show you additional photographs and submit sketches to visualize your ideas.

standard pattern letters

(in inches)

RIBBON ABCDEF

sizes available—¼, ⅜, ½, ¼, 1½, 2.

FUTURA ABCDEF

sizes available—1½, 2.

ROMAN ABCDEF

sizes available—¼, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼, 1½, 1¾, 2, 3, 4, 5, 6.

MODERN BLOCK ABCDEF

sizes available—⅜, ½, ⅝, ¾, 1, 1½, 2.

OVAL FACE ABCDEF

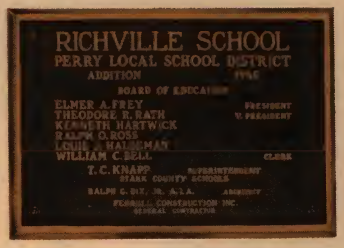
sizes available—¼, 5⁄16, ⅜, ½, ⅝, ¾, 1, 1 1⁄16, 1¼, 1⅜, 1½.

CONDENSED BLOCK ABCDEF

sizes available—⅛, ¼, ⅜, ½, ⅝, ¾, 1, 1¼, 1⅜, 1⅞, 2⅛.

CLASSIC ABCDEF

sizes available—¼, 5⁄16, ⅜, ½, ⅝, ¾, ⅞, 1, 1¼, 1½, 1¾, 2, 2½.



No. 400—20 x 30 ins., bevel border. Roman letters.



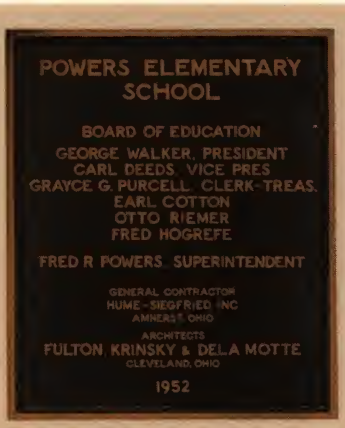
No. 406—18 x 24 ins., single line border. Modern Block letters.



No. 408—18 x 22 ins., portrait scroll border. Classic letters.



No. 410—24 x 30 ins., single line (wide) border. Broadway letters.



No. 414—18 x 30 ins., single line border. Modern Block letters.



No. 416—18 x 24 ins., single line border. Modern Block letters.



No. 420—24 in., rope border, Roman letters.

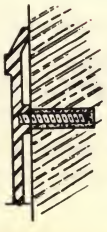


No. 424—48 in., flat band border, Special letters.

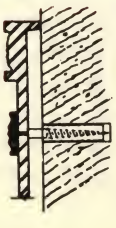
installation details



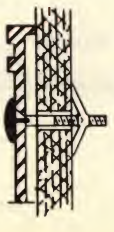
Screws and rosettes used for installations on wood facing.



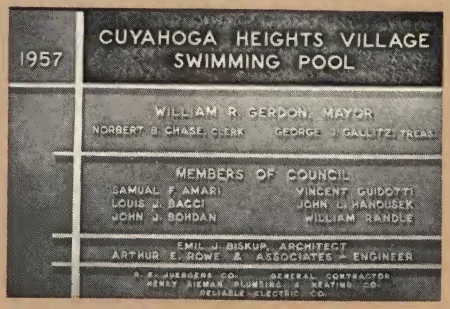
Concealed method of fastening threaded rods mounted on back of tablet set in grout.



Bronze or stainless steel screws set into lead anchors or expansion shields. Ornamental rosettes cover heads of screws.



Toggle bolts used for hollow tile and similar thin facing materials.



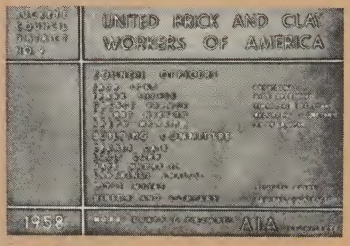
No. 430—18 x 24 ins., no border. Modern Block letters.



No. 434—24 x 36 ins., no border. Modern Block letters.



No. 444—24 x 36 ins., flat band bevel border. Oval Face.



No. 432—20 x 30 ins., no border. Ribbon letters.



No. 436—30 x 30 ins., triple border. Roman letters.



No. 448—18 x 24 ins., single line border. Modern Block letters.



No. 450—48 x 48 ins., single line border. Special Roman letters.



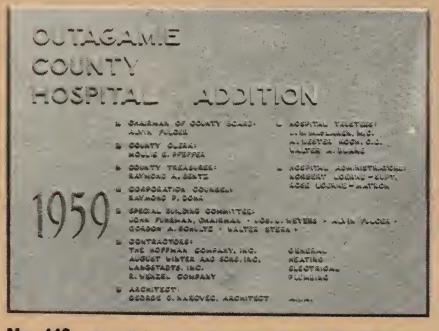
No. 438—20 x 24 ins., no border. Modern Block letters.



No. 452—30 x 36 ins., flat band bevel border. Modern Block letters.



No. 442—20 x 24 ins., double line border. Modern Block letters.



No. 440—30 x 36 ins., bevel border. Modern Block letters.



No. 446—Special.

short form specifications

Aluminum (bronze) tablet(s) shall be as manufactured by ART IN BRONZE COMPANY, INC., 1623 East 41st Street, Cleveland 3, Ohio. The tablet shall be approximately ____ by ____ inches and shall be as shown on the drawings (or shall contain approximately ____ letters in the inscription). Letters shall be ____ style and shall have a polished face. Background shall be pebble (leatherette or stippled) texture and shall be allowed to oxidize. Border shall be as detailed and polished. Entire tablet shall have a spray-on lacquer finish.

Furnish full-scale shop drawing or "rub" for approval prior to casting.

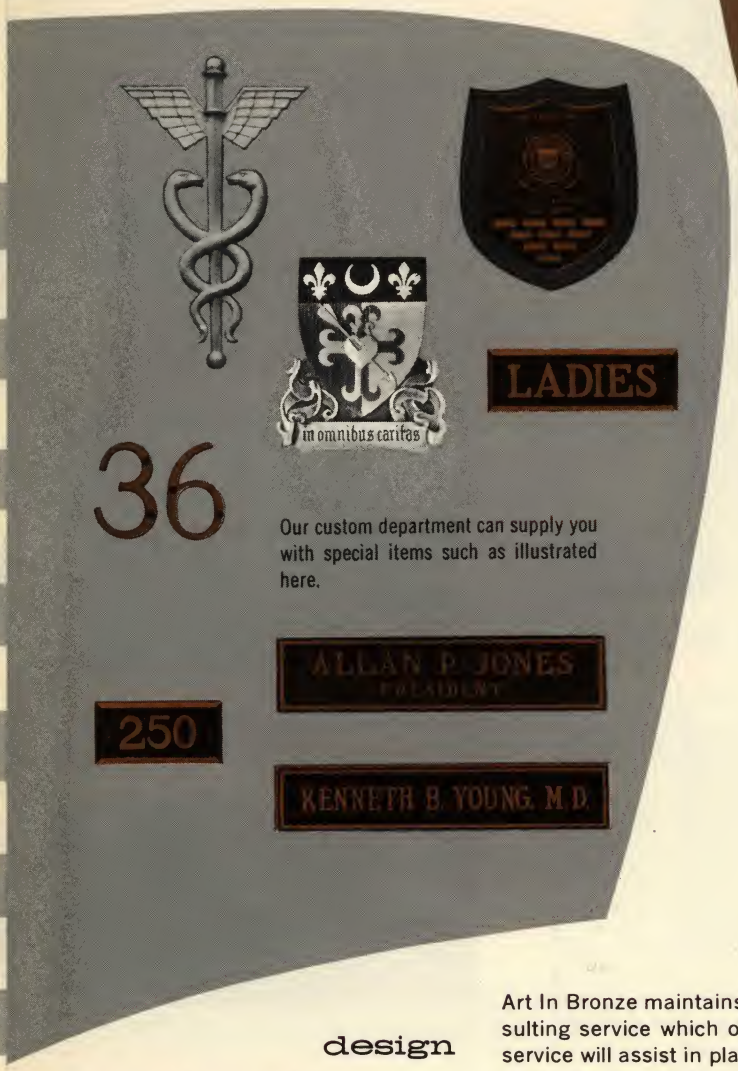
Erection of tablet to be by _____ method (see installation method).

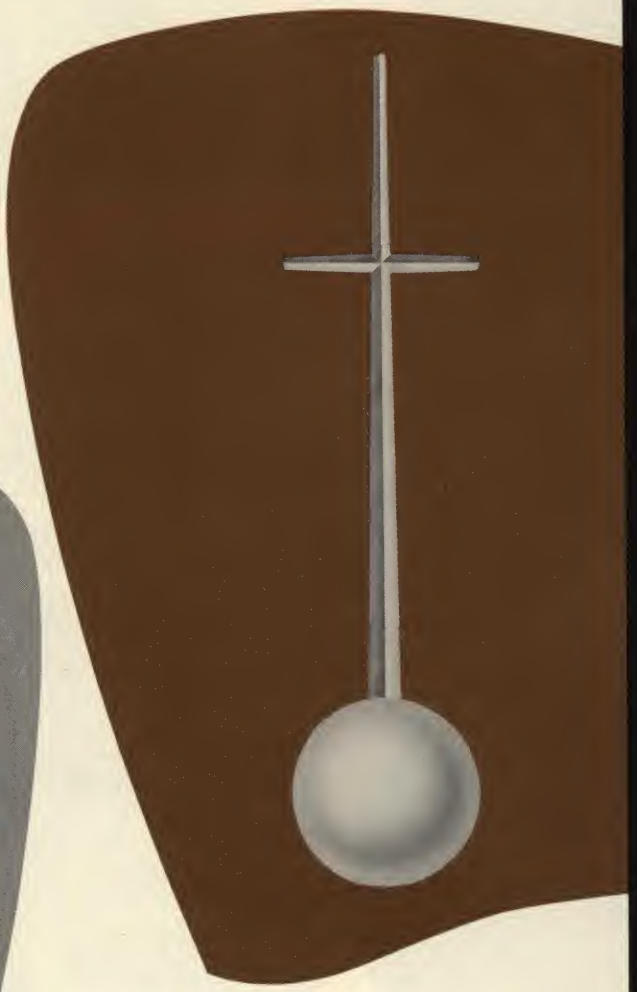
ART IN BRONZE ALUMINUM

other custom metal work

In addition to the preceding products, Art In Bronze will also fabricate metal work according to individual specifications. If estimates are desired at no obligation, send sketches or blueprints to our office. All such requests or orders will be handled in a professional manner and returned as soon as possible.

We have shown below several items which were fabricated according to architects' individual designs.





Art In Bronze custom designed cast crosses are liturgically accurate. They are fabricated for ease in installation. They are available in aluminum and with special finishes in sizes from 4 to 12 feet.

design and engineering

Art In Bronze maintains for architects and engineers a professional consulting service which offers qualified technical advice at no cost. This service will assist in planning letters and signs for buildings, memorials, parkways, etc., and will also help in formulating ideas for commemorative plaques. Special mounting details for letters and plaques can be accommodated by our engineering and fabricating staffs.

Art in Bronze

Since 1917

ART IN BRONZE Company, Inc
1823 East 41st Street, Cleveland 3, Ohio
HEnderson 1-6200

6f
Co

METAL

AND PLASTIC FACE

LETTERS

CUSTOM AND STOCK DESIGNS

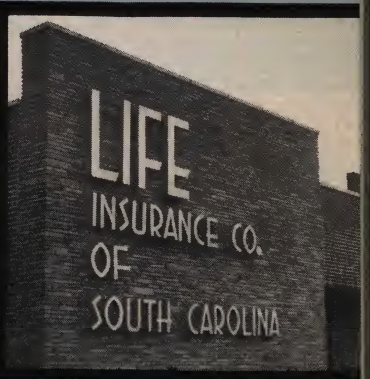
Catalog MP-1-60

COL-ITE®

1960







© COLONIAL-HITES CO. 1959

ENGINEERED AND
MANUFACTURED BY

COLONIAL-HITES COMPANY
WEST COLUMBIA, SOUTH CAROLINA

*NOTE:—The following trade nomes have been used in this catalog — please credit:—

Plexiglas:—Registered trade mark for Rohm & Haas Company.

Alumilite:—Registered trade name for a patented process for treating aluminum owned by the Aluminum Company of America.

Col-ite:—Registered trade nome for Colonial-Hites letters (non-lighted)

Colonial-Hites Company

facilities

One of the largest and best equipped plants of its kind in the country, Colonial-Hites Company designs, manufactures, assembles and installs large and small signs of every description. Up-to-date equipment and facilities plus expert craftsmanship enable Colonial-Hites Company to produce signs that have been acclaimed by the nation's foremost architects and contractors.





fabrication and assembly

Letters for signs are fabricated of aluminum, stainless steel and Plexiglas* or cast in aluminum or bronze. During fabrication they are constantly checked for workmanship and adherence to specifications. When a sign leaves the Colonial-Hites plant it is as complete as possible, and with mounting template, is ready for installation.

advantages

distinctive identification

visual appeal

value

advertising merit

economy

built for years of service

consultation and design service

A staff of artists, specialists in the design and detailing of signs, is available for consultation.

Architects, contractors and business executives are invited to use the creative and technical skills of this staff to produce "signing" that will harmonize and enhance the beauty of an existing or contemplated structure.

index

custom design	3- 8
stock design	9-12
lighting details	14-15
mounting details	16-18
special stock items	18-19
regional offices	20

custom design

sizes and styles

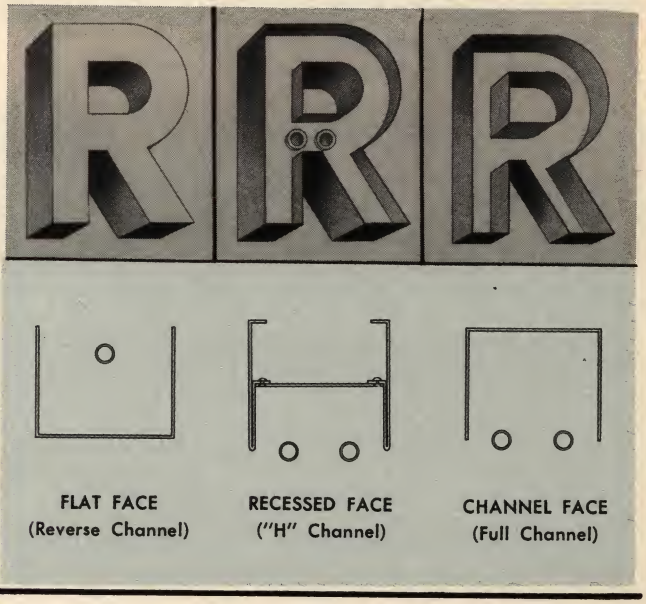
illuminated and non-illuminated

Custom designs shown on pages 4 through 8 are fabricated strictly to your design, both in size and style. Free rein is allowed the designer since mechanical restrictions are held to a minimum. Our skilled craftsmen can reproduce practically any type of letter or trademark.

mounting & lighting

(See pages 15-18)

Hardware and Template — Standard Hardware and full scale mounting template included in letter prices for individually mounted letters.



finishes†

aluminum–welded/sawed plate

No. 5 Natural Satin

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then sprayed with two coats of clear lacquer for protection.

No. 6 Bronze Metallic

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then sprayed with a clear polymer type binder with bronze powder, followed by a clear coat of the binder for added durability.

No. 7 Perma-Coat

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then enamelized by spray application with the finest quality polymer type coating which is baked at the required temperature for the recommended time. (Color chart on request.)

No. 8 Alumilite* Satin finish

Buffed faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; anodized for thirty minutes to give protection against corrosion, then sprayed with two coats of clear lacquer for additional protection.

No. 9 Aluminum Metallic

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then sprayed with a clear polymer type binder with aluminum powder, followed by a clear coat of the binder for added durability.

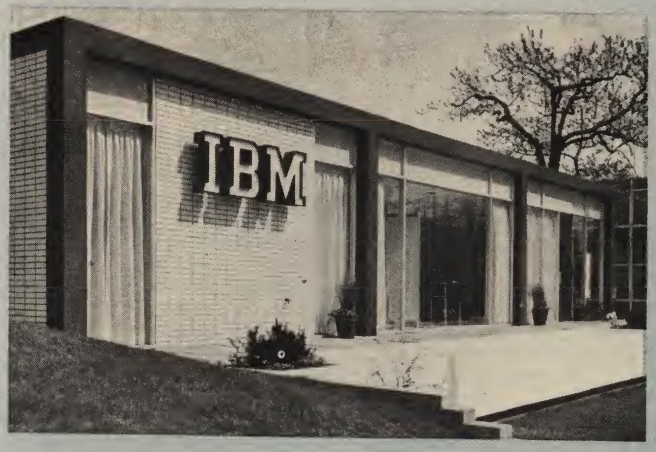
No. 11 Porcelain Enamel

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, sprayed with low melting frit, fired at 950-1050° F. for required time.

stainless steel

The returns of the stainless steel letter will be furnished in #4 polish finish. The faces are belted horizontally with a fine belt, thereby giving uniform satin finish.

†These finishes, when applied to plastic face letters, would concern only the returns of the letters.



International Business Machines Corp., Canton, Ohio
Builder: Benderson Development Co., Buffalo, N. Y.



Grand Leader, Southgate Plaza Shopping Center, Fort Wayne, Indiana
Architects: Sidney H. Morris & Associates, Chicago, Ill.
Builder: Alexander & Kingbay, Minneapolis, Minn.

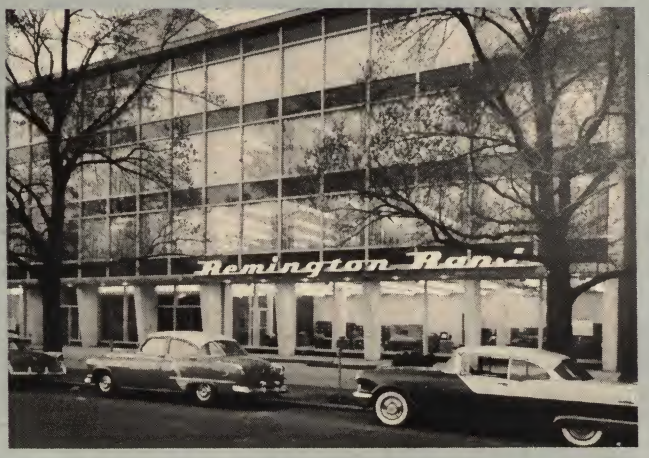
ILLUMINATED LETTERS

plexiglas* face

welded aluminum

custom design





Remington Rand, Boston, Mass.
Architect: Coletti Bros., Boston, Mass.
Contractor: Rapolli Bros., Inc., Boston, Mass.

materials

Channel Face (Full Channel), welded aluminum letter using .091" or .125"† 3003-H-14 alloy aluminum with standard exterior .187" colored Plexiglas* faces. 12 MM outline neon in the channel of each letter. Porcelain bushings for proper insulation and the correct number and size of transformers insure the ultimate in performance. The neon tubing is normally powered by 30 MA normal power factor transformers.

†Small additional charge.

colors

The plastic faces can be furnished in the following outdoor translucent Plexiglas* colors: Red 2415; Green 2030; Blue 2201; Yellow 2037; Yellow 2016; Orange 2143; Tan 2019; White W7328. (Color samples available direct from Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.) Neon — the color most suitable for the plastic face. The inside channel of all letters have a white enamel finish for maximum reflection of light.

The returns can be left natural or furnished in our standard #7 Perma-coat (baked-on) or #11 Porcelain enamel colors as follows: Red, yellow, orange, blue, glossy black, satin black, white, green, turquoise, cream, brown and maroon (chart available on request.)

specifications

The letters shown on the plans shall be solid weld 3003-H-14 alloy aluminum letters with Plexiglas* faces as manufactured by Colonial-Hites Company, West Columbia, S. C. or approved equal. The letters will be 30" high, 6" faces, and 8" deep. Faces shall be 3/16" thick Plexiglas* RED #2415. The Channel letters are of .091" aluminum stock with back and returns finished in WHITE BAKED-ON ENAMEL. All welds shall be ground smooth and the backs shall be free of waves and distortions. The manufacturer shall mount in the channel of each letter, a DOUBLE tube of 12 MM CLEAR RED neon and 30 MA NORMAL power factor transformers, PL Type J. The inside channel of the letter to be enameled white for reflection of neon lighting. All letters to be mounted 4" from the face of the wall, WM Type 2. Detail shop drawings to be submitted for approval before fabrication. The manufacturer shall also supply a full scale template for positioning of studs and anchors. The complete sign installation shall be guaranteed for 1 year from date of installation.

price list/custom or standard design

WELDED ALUMINUM LETTERS WITH PLEXIGLAS FACES

Letter Height	Gauge of Return	Face Width	No. Tubes	#5 Natural Satin, #6 Bronze Metallic, #7 Perma-Coat, #9 Aluminum Metallic			#8 Satin Alumilite			#11 Porcelain Enamel		
				Depth 4"	Depth 6"	Depth 8"	Depth 4"	Depth 6"	Depth 8"	Depth 4"	Depth 6"	Depth 8"
12"	.091	2½"	1	$35.65	$36.95		$40.25	$41.90		$44.90	$46.85	
15"	.091	3½"	1	46.20	47.85	$49.50	51.95	54.05	$56.10	57.75	60.25	$62.70
18"	.091	3½"	1	60.05	62.05	64.00	67.00	69.45	71.95	73.90	76.90	79.85
21"	.091	3½"	1	67.30	69.65	72.05	75.40	78.30	81.30		87.00	90.55
24"	.091	3½"	1	77.90	80.50	83.15	87.10	90.40	93.70		100.30	104.30
30"	.091	3½"	1		107.80	110.45		119.90	123.10		132.00	135.75
36"	.091	3½"	1		128.50	132.90		142.80	148.85		157.10	166.80
18"	.091	4"	2		69.95	71.95		77.40	79.85		84.80	87.80
21"	.091	4½"	2		78.85	81.30		87.55	90.55		96.20	99.80
24"	.091	5"	2		91.10	93.70		101.00	104.30		110.90	115.00
30"	.091	5"	2		121.00	123.65		133.10	136.30		145.20	148.95
36"	.091	5"	2		144.30	148.70		158.60	164.65		172.90	180.60
42"	.091	5"	2		179.50	184.15		197.00	203.95		214.50	223.75

extras

Punctuation Marks: ⅓ price of letter. Spurred letters 10% additional. Connected script letters — add 20%. Disconnected script letters — add 10%. Old English — priced from your drawing. Enamel colors matched to your sample — $20.00 extra.

For marquee or roof mounting use heavy gauge extruded aluminum raceway, 4" x 4½" which should be the full length of the inscription. All high-tension wiring and the proper size and number of Normal Power Factor (brick-bat type) transformers to be housed within the raceway. Natural aluminum finish, per foot, $4.00. Alumilite* satin finish, per foot, $6.00. When a sign must bear an Underwriters Label, we use our 8" x 6½" extruded aluminum raceway with all high-tension wiring and transformers enclosed therein. Natural aluminum finish, per foot, $8.00. Alumilite* Satin finish, per foot, $10.00.

These prices include neon tubes as listed plus the necessary †30 M. A. ‡Normal Power Factor transformers. Sizes larger than 42" high quoted on receipt of design and other pertinent information.

†60 M. A. transformers available at additional cost.

‡High Power Factor transformers available at additional cost.

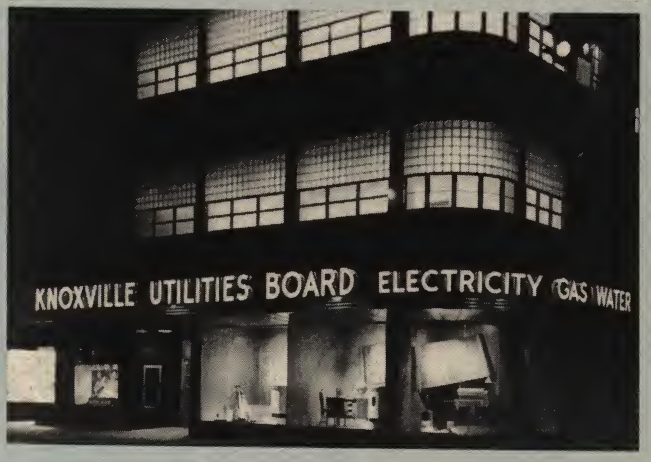
ILLUMINATED LETTERS

plexiglas* face

fabricated stainless steel

custom design





Knoxville Utilities Board, Knoxville, Tennessee
Architects: Bauman and Bauman, Knoxville, Tennessee
Contractor: V. L. Nicholson Company, Knoxville, Tennessee

materials

Channel Face (Full Channel), stainless steel letter using 20 gauge Type 302, 18-8 alloy, stainless steel with standard exterior .187" colored Plexiglas* face. The backs of the letters will be 20 gauge paint-grip steel. 12 MM outline neon in the channel of each letter. Porcelain bushings for proper insulation and the correct number and size of transformers insure the ultimate in performance. The neon tubing is normally powered by 30 MA normal power factor transformers.

colors

Plastic faces can be furnished in the following outdoor translucent Plexiglas* colors: Red 2415; Green 2030; Blue 2201; Yellow 2037, Yellow 2016; Orange 2143; Tan 2019; White W7328. (Color samples available direct from Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.) Neon — the color most suitable for the plastic face. The inside channel of all letters have a white enamel finish for maximum reflection of light. The returns of the stainless steel letter will be furnished in #4 polish finish.

specifications

The letters shown on plans shall be soldered stainless steel letters with Plexiglas* faces as manufactured by Colonial-Hites Company, West Columbia, S. C. or approved equal. The letters are 24" high, 5" faces and with 6" depth. The faces shall be 3/16" thickness Plexiglas* WHITE W-7328. The channel letters are to be constructed with 20 gauge, type 302, 18-8 alloy, stainless steel returns and with backs of paint-grip steel. All surplus solder shall be removed. The inside letter channel will be enameled white for proper reflection of neon lighting. The manufacturer shall mount in the channel of each letter, a DOUBLE tube of 12 MM WHITE neon and shall supply the necessary 30 MA NORMAL power factor transformers, PL type J. All letters to be mounted free standing on top of an EXTRUDED ALUMINUM raceway with access door to the back, RM type M. Within the raceway, all secondary wiring and transformers are to be housed. Detail shop drawings to be submitted for approval before fabrication. The primary connection to the sign will be by the electrical contractor under Section 7. The complete sign installation shall be guaranteed for 1 year from date of installation.

price list

FABRICATED STAINLESS STEEL PLEXIGLAS FACE LETTERS

Letter Height	Gauge of Return	Face Width	No. Tubes	Depth 4"	Depth 6"	Depth 8"
12"	20 ga.	2½"	1	$37.70	$42.45	$47.25
15"	20 ga.	3½"	1	48.35	54.35	60.35
18"	20 ga.	3½"	1	62.55	69.75	76.95
21"	20 ga.	3½"	1	68.60	77.00	85.35
24"	20 ga.	3½"	1	78.80	88.45	98.05
30"	20 ga.	3½"	1	106.45	118.40	130.40
36"	20 ga.	3½"	1	124.70	139.10	153.50
42"	20 ga.	3½"	1	155.20	166.70	178.90
18"	20 ga.	4"	2		77.65	84.40
21"	20 ga.	4½"	2		85.90	94.25
24"	20 ga.	5"	2		99.00	108.60
30"	20 ga.	5"	2		131.60	143.60
36"	20 ga.	5"	2		154.95	169.35
42"	20 ga.	5"	2		185.20	197.40

extras

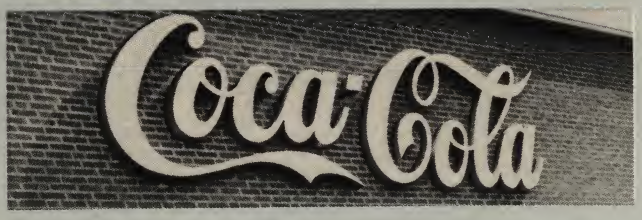
Punctuation Marks: ⅓ price of letter. Spurred letters 10% additional. Connected script — add 20%. Disconnected script — add 10%. Old English — priced from your drawing. For marque or roof mounting use heavy gauge extruded aluminum raceway, 4" x 4½" which should be the full length of the inscription. All high-tension wiring and the proper size and number of normal power factor (brick-bat type) transformers to be housed within the raceway. Natural aluminum finish, per foot, $4.00. Alumilite* satin finish, per foot, $6.00. Also 18 gauge fabricated stainless steel raceway 4" x 4½", #4 polish finish, per foot, $8.00. When a sign must bear an Underwriters' Label, we use our 8" x 6½" extruded aluminum raceway with all high-tension wiring and transformers enclosed therein. Natural aluminum finish, per foot, $8.00. Alumilite* satin finish, per foot, $10.00.

These prices include neon tubes as listed plus the necessary ‡30 MA †normal power factor transformers. Sizes larger than 42" high quoted on receipt of design and other pertinent information.

‡60 M.A. transformers available at additional cost.
†High power factor transformers available at additional cost.

COL-ITE ALL METAL LETTERS

welded aluminum



Coca-Cola Bottling Co., Kinston, N. C.
Architects: John J. Rowland, James M. Simpson, Assoc., Kinston, N. C.
Contractor: O. L. Shackelford, Inc., Kinston, N. C.



materials

Welded aluminum sheet letters are fabricated from 3003-H-14 aluminum sheet in thicknesses of .091" to .125"† according to the size of the letters, or as specified. Large letters are braced when and where necessary, or as specified, to obtain the structural durability for a permanent installation. Aluminum sheet provides a material free of corrosion, making an installation of welded aluminum letters practically without need of maintenance.

colors

Standard Perma-Coat (baked-on) or Porcelain Enamel finishes come in the following colors: Red, yellow, orange, blue, gloss black, satin black, white, brown, green, turquoise, cream and maroon. (Chart available on request.)

specifications

The letters shown on the plans shall be solid weld 3003-H-14 alloy aluminum letters of .091" thickness equal to COL-ITE as manufactured by Colonial-Hites Company, West Columbia, S. C. The letters shall be 18" high, 3" face, 4" deep, of the design as shown on the plans, Sheet #3. All welds shall be ground smooth and the faces shall be free of waves and distortions. All letters to receive #8 SATIN ALUMILITE* finish. The letters to be mounted free standing on a continuous 1"X3" ALUMILITED* extruded aluminum channel, BM type A, which is to be furnished by the letter manufacturer. Detail shop drawings to be submitted for approval before fabrication.

price list

WELDED ALUMINUM SHEET LETTERS

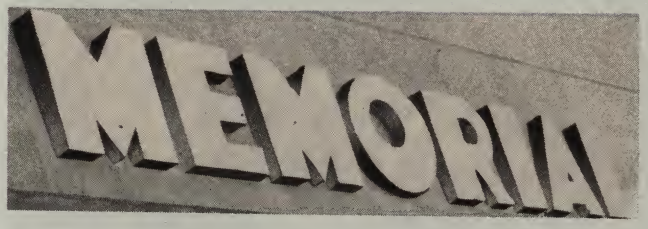
Prices are for: #5 Natural Satin, #6 Bronze Metallic, #7 Perma-Coat, #9 Aluminum Metallic

Letter Height	Gauge of Return	Depth 1"	Depth 2"	Depth 3"	Depth 4"	Depth 6"	Depth 8"	Depth 10"	Depth 12"
6"	.091	$9.70	$10.35	$11.00	$11.65	$12.30			
8"	.091	10.55	11.00	11.65	12.10	14.30			
10"	.091		13.00	13.65	14.30	16.50			
12"	.091		17.15	17.80	18.50	19.80	$21.10		
15"	.091		21.80	22.45	23.10	24.75	26.40		
18"	.091		26.40	27.05	27.70	29.70	31.70		
21"	.091			31.70	32.35	34.65	36.95		
24"	.091			36.30	36.95	39.60	42.25		
30"	.091				45.75	48.40	50.60	$53.90	$64.35
36"	.091				52.80	57.20	63.80	69.30	79.20
42"	.091				60.05	69.95	79.20	85.90	102.65
48"	.091				74.60	85.80	89.10	108.90	118.80
60"	.091					123.40	138.60	148.50	165.00
72"	.091					178.20	198.00	217.80	237.60

extras

Punctuation Marks: ⅓ price of letter. Recessed face letters 20% additional. Spurred letters — add 20% up to 18" — 10% on larger letters. Connected script letter — add 10%. For .125" aluminum — add 25%. Our #8 Alumilite* satin finish — add 20%. Two color baked enamel — add 10%. Porcelain enamel — add 50%. Baked enamel colors matched to your sample — $20.00 extra, special porcelain colors — $50.00 extra. Back enclosures of aluminum — add 25%. All extended or script letters are priced according to their greatest dimension. Old English — priced from your drawing. Extruded aluminum channel for marquee or roof mounting, drilled and ready for mounting of letters, per foot mill finish — $2.00. Alumilite finish — $3.00. Neon lighting priced on request.

fabricated stainless steel



West Virginia Turnpike
Contractor: Kuhn Construction Co., Charleston, W. Va.
Engineers: Singstad & Baillie, New York, N. Y.



materials

Stainless steel letters are fabricated from #4 finish, Type 302, 18-8 alloy, stainless steel in 16 to 20 gauge. The letters are well braced and have straight edges. Faces are flat and buckle-free with all surfaces polished gleaming and flawless.

specifications

The letters shown on the plans shall be fabricated from 18 gauge, type 302, 18-8 alloy stainless steel equal to COL-ITE as manufactured by Colonial-Hites Company, West Columbia, S. C. The letters shall be 24" high, 4½" faces, 5" deep of the design shown on the plans, sheet #10. The letters are to be of soldered construction, with all excess solder removed. The finish is to be #4 polish, with all lines running horizontally across the faces. The letters are to be fitted with rustproof attachments, PM type B for mounting on a MASONRY wall. Detail shop drawings to be submitted for approval before fabrication.

price list

FABRICATED STAINLESS STEEL LETTERS
Prices are for 20 Gauge Faces and Returns
(20 gauge is satisfactory through 3" faces, 18 gauge through 6" faces and 16 gauge for all others)

Letter Height	Depth 1"	Depth 2"	Depth 3"	Depth 4"	Depth 5"	Depth 6"	Depth 7"	Depth 8"
3"	$4.50	$4.50						
4"	6.00	6.00						
6"	9.00	9.00	$11.45					
8"	12.00	12.00	15.25					
10"	15.00	15.00	19.05	$19.05				
12"	18.05	18.05	22.80	22.80	$27.60	$27.60		
14"		21.00	26.60	26.60	32.25	32.25		
16"		24.05	30.40	30.40	36.80	36.80	$43.25	$43.25
18"		27.00	34.20	34.20	41.40	41.40	48.60	48.60
21"			39.95	39.95	48.30	48.30	56.70	56.70
24"			45.60	45.60	55.20	55.20	64.80	64.80
30"			57.05	57.05	69.00	69.00	81.00	81.00
36"			68.40	68.40	82.85	82.85	97.25	97.25

extras

Punctuation Marks: ⅓ price of letter. All extended or script letters are priced according to their greatest dimension. Ribbon Style up to ¾" faces — 30% additional. 18 gauge faces and returns — add 25%. 16 gauge faces and returns — add 40%. Connected script — add 20%. Recessed faces — add 20%. Spurred letters — 20% up to 18" — 10% on larger letters. Disconnected script — add 10%.

Extruded aluminum channel for marquee or roof mounting, drilled and ready for mounting of letters, per foot — $2.00. Formed (18 gauge) stainless steel channel, per foot — $4.00. Any neon lighting priced on request. Standard mounting hardware, for individual mounting, furnished at no extra cost. Also, full scale mounting template.



Knoxville Catholic High School, Knoxville, Tennessee
Architects: Bauman and Bauman, Knoxville, Tennessee
Contractor: Emory and Richards, Knoxville, Tennessee

ALL METAL LETTERS

sawed aluminum plate



Williams Printing Company, Spartanburg, S. C.
Architects: Hudson and Chapman, Spartanburg, S. C.
Contractor: Fiske-Carter Construction Co., Spartanburg, S. C.



materials

Cut-out aluminum letters are fabricated from 3003-F alloy aluminum plate in ¼", ⅜" or ½" thickness. Aluminum plate provides a material free from corrosion, making an installation of cut-out letters practically free of maintenance costs.

colors

Standard Perma-Coat (baked-on) or porcelain enamel finishes available in red, yellow, orange, blue, glossy black, satin black, white, green, turquoise, cream, brown and maroon (chart available on request).

specifications

The letters shown on the plans shall be 3003-F alloy cut-out aluminum of 1/4" thickness. The design of letters shall be UPPER & LOWER CASE as shown on FRONT elevation, Sheet # 2. The letters are expertly sawed and the edges ground smooth prior to receiving a # 8 ALUMILITE SATIN finish. Each letter is to be mounted individually on BRICK wall with non-corrosive STUDS and 1" aluminum SPACER SLEEVES, PM type L. Letters equal to COL-ITE as manufactured by Colonial-Hites Company, West Columbia, S. C. Detail shop drawings to be submitted for approval before fabrication. The manufacturer shall also supply a full scale drilling template for positioning of the studs.

price list custom or standard design

Letter Height	# 5 Natural Satin # 6 Bronze Metallic # 7 Perma-Coat # 9 Aluminum Metallic	# 8 Satin Alumilite	# 11 Porcelain Enamel	# 5 Natural Satin # 6 Bronze Metallic # 7 Perma-Coat # 9 Aluminum Metallic	# 8 Satin Alumilite	# 11 Porcelain Enamel
	Depth ¼"			Depth ½"		
3"	$3.30	$3.80	$6.60	$3.75	$4.25	$6.75
4"	3.85	4.35	6.85	4.55	5.05	7.55
5"	4.40	4.90	7.40	5.65	6.25	8.65
6"	4.80	5.30	7.80	6.10	6.70	9.15
8"	7.05	7.75	10.55	8.10	8.90	12.15
10"	9.30	10.25	13.95	10.10	11.10	15.15
12"	11.55	12.70	17.85	13.20	14.55	19.80
14"	15.85	17.45	23.80	18.70	20.60	28.05
16"	19.05	20.95	28.55	25.30	27.85	37.95
18"	23.10	25.45	34.65	29.70	32.70	44.55

extras

Punctuation Marks: ⅓ price of letter. Extended or script letters are priced according to greatest dimension. Spurred letters — add 20%. Disconnected script letters — add 10%. Connected script letters 30% additional.

materials

Cast aluminum letters are cast of F214 alloy aluminum ingots. (Finishes # 5 through #9.) Cast bronze letters are cast from the finest architectural bronze ingots (Finishes #12 and #13).

finishes

CAST ALUMINUM

No. 5 Natural Satin

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then sprayed with two coats of clear lacquer for protection.

No. 6 Bronze Metallic

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then sprayed with a clear polymer type binder with bronze powder followed by a clear coat of binder for added durability.

No. 7 Perma-Coat

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then enameled by spray application with finest quality polymer type coating which is baked at the required temperature for the recommended time. (Color chart on request.)

No. 8 Alumilite* Satin finish

Buffed faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; anodized for thirty minutes to give protection against corrosion, then anodized with 2 coats of clear lacquer for additional protection.

No. 9 Aluminum Metallic

Belt finish faces, filed and ground edges, immersed in hot alkaline cleaner to remove contamination, etched to give an even satin finish and remove oxidation; then sprayed with a clear polymer type binder with aluminum powder followed by a clear coat of binder for additional durability.

CAST BRONZE

No. 12 — Natural satin

Fine belt finish faces, filed and ground edges, coated with clear lacquer for protection.

No. 13 — Oxidized

Faces ground smooth, edges filed, all surfaces sand blasted, oxidized to a deep statuary color, then buffed to uniformity before clear lacquer is applied.

colors

Standard #7 Perma-Coat finishes come in the following colors: Red, yellow, orange, blue, gloss black, satin black, white, green, turquoise, cream, brown or maroon. (Color chart available on request.)

mounting

(See pages 15-18)

typical specifications

Metal letters: Furnish and install complete the metal letters reading MERRY HIGH SCHOOL as shown on the plans, Sheet # 6. The letters shall be F 214 alloy cast aluminum with a # 7 PERMA-COAT (COLOR TO BE SELECTED) finish. The letters will be from stock patterns, # 325 COLONIAL Style, 16" high, 2 5/8" face, 2 5/8" deep, equal to COL-ITE as manufactured by Colonial-Hites Company, West Columbia, S. C. The letters shall be mounted 2" from the face of the wall, PM Type K. Detail shop drawings to be submitted by the manufacturer for the architect's approval before casting. The manufacturer shall furnish the contractor with a full scale mounting template for positioning of the STUDS.

extras

Punctuation Marks: ⅓ price of letter. Two color 10% additional. Enamel colors matched to your sample — add $20.00. Extruded aluminum channel or flat bar for marquee or roof mounting, drilled and ready for mounting of letters — mill finish per foot $2.00, anodized finish $3.00. Standard mounting hardware for individual mounting, furnished at no extra cost. Also, full scale mounting template.



Bergen Catholic High School, Oradell, N. J.
Architect: Fanning & Shaw, Patterson, N. J.
Contractors: Censullo-Burke Construction Co., Secaucus, N. J.



North American Baptist Association, Little Rock, Ark.
Architect: Richard W. Groh, Little Rock, Ark.

CAST METAL LETTERS

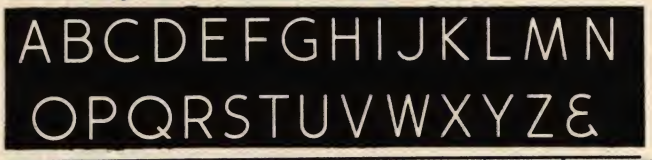
price group 3

ribbon no. 755 (price group 3)



Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
1"	1/8"	3/8"	3/4"	6"	3/8"	1"	4 1/2"
1 1/2"	1/8"	1/2"	1"	8"	1/2"	1 1/2"	6"
2"	1/8"	1/2"	1 1/2"	10"	1/2"	2"	7"
2 1/2"	3/16"	3/4"	1 3/4"	12"	5/8"	2 1/4"	8"
3"	3/16"	3/4"	2"	14"	5/8"	2 1/2"	10"
4"	1/4"	1"	3"	16"	3/4"	2 3/4"	12"
5"	5/16"	1"	3"	18"	3/4"	3"	12"

ribbon style no. 855 (price group 3)



Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
2"	1/4"	3/4"	1 1/2"	8"	1/2"	1 7/8"	5"
3"	5/16"	1"	2"	10"	5/8"	2 1/8"	7"
4"	3/8"	1 1/8"	2 3/4"	12"	3/4"	2 1/2"	8"
5"	7/16"	1 3/8"	3 1/2"	15"	7/8"	3"	10"
6"	7/16"	1 1/2"	4"	18"	7/8"	3"	12"

wolff no. 213 (price group 3)



Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
4"	13/32"	13/16"	3"	10"	1"	2"	7"
5"	1/2"	1"	3 1/2"	12"	1 7/32"	2 13/32"	8 1/3"
6"	5/8"	1 7/32"	4 1/4"	14"	1 13/16"	2 13/32"	9 2/3"
8"	13/16"	1 5/8"	5 1/2"				

wolff no. 214 (price group 3)



Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
1"	1/8"	1/4"	5/8"	6"	9/16"	1 1/8"	3 1/2"
1 1/2"	5/32"	5/16"	7/8"	8"	3/4"	1 1/2"	4 2/3"
2"	3/16"	3/8"	1 1/8"	10"	15/16"	1 7/8"	6"
3"	9/32"	9/16"	1 3/4"	12"	1 1/8"	2 1/4"	7"
4"	3/8"	3/4"	2 1/3"	14"	1 5/16"	2 5/8"	8 1/6"
5"	15/32"	15/16"	3"				

brookside no. 350 (price group 3)



Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
4"	1/4"	3/4"	1"	8"	7/16"	1 1/2"	2"
5"	9/32"	15/16"	1 1/4"	10"	1/2"	1 7/8"	2 1/2"
6"	11/16"	1 1/8"	1 1/2"	12"	5/8"	2 1/4"	3"

alarie no. 300 (price group 3)



©COLONIAL-KITES CO. 1956

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
3"	3/16"	3/16"	1"	10"	5/8"	1 7/8"	3 1/3"
4"	1/4"	3/4"	1 1/3"	12"	3/4"	2 1/4"	4"
6"	3/8"	1 1/8"	2"	14"	7/8"	2 5/8"	4 2/3"
8"	1/2"	1 1/2"	2 2/3"	16"	1"	3"	5 1/3"

alarie no. 375 (price group 3)



Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
8"	1/2"	1 1/2"	2 1/2"	12"	3/4"	2 1/4"	3 3/4"
10"	5/8"	1 7/8"	3 1/4"				

price list (group 3)

Letter Height	ALUMINUM: #5 Natural Satin, #6 Bronze Metallic, #7 Perma-Coat, #9 Aluminum Metallic	ALUMINUM: #8 Satin Alumilite	BRONZE: #12 Natural Satin or #13 Oxidized
1"	$1.65	$2.15	$2.50
1 1/2"	2.00	2.50	3.00
2"	2.20	2.70	3.30
2 1/2"	2.70	3.20	4.05
3"	3.15	3.65	4.75
4"	5.10	5.60	7.65
5"	6.20	6.85	9.30
6"	7.25	8.00	10.90
8"	8.45	9.30	14.80
10"	10.50	11.55	18.40
12"	13.20	14.55	26.40
14"	17.50	19.25	35.00
15"	19.80	21.80	39.60
16"	21.45	23.60	Not Available
18"	27.20	29.95	

colonial no. 325 (price group 2)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
1½"	3/8"	3/8"	1"	10"	1 5/8"	1 5/8"	7½"
2"	½"	½"	1½"	N 12"	2"	2"	9"
3"	5/8"	¾"	2"	N 14"	2 5/16"	2 5/16"	10"
4"	5/8"	5/8"	3"	N 15"	2½"	2½"	11"
6"	1"	1"	4½"	N 16"	2 5/8"	2 5/8"	12"
8"	1 5/16"	1 5/16"	6"	N 18"	3"	3"	15"

garamond no. 854 (price group 2)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
2"	5/16" & 5/32"	¼"	1¾"	8"	1 1/16" & 5/8"	¾"	6⅝"
3"	½" & ¼"	¾"	2½"	10"	1 5/8" & ¾"	¾"	8¼"
4"	11/16" & 5/16"	⅜"	3¾"	12"	2" & ⅞"	1"	10"
5"	13/16" & ⅜"	½"	4⅛"	15"	2½" & 1⅛"	1⅛"	12½"
6"	1" & ½"	½"	5"	18"	3" & 1⅜"	1½"	15"

modern no. 340 (price group 2)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
4"	5/8"	5/8"	2¾"	N 12"	2"	2"	8"
6"	1"	1"	4"	N 14"	2 5/16"	2 5/16"	9¼"
8"	1 5/16"	1 5/16"	5¼"	N 16"	2 5/8"	2 5/8"	10¾"
10"	1 5/8"	1 5/8"	6¾"	N 18"	3"	3"	12"

broadway no. 328 (price group 2)

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
4"	1 5/16" & 5/8"	5/8"	3¾"	N12"	4" & 2"	2"	11"
6"	2" & 1"	1"	5½"	N14"	4 5/8" & 2 5/16"	2 5/16"	12¾"
8"	2 5/8" & 1 5/16"	1 5/16"	7¼"	N16"	5 5/16" & 2 5/8"	2 5/8"	14½"
10"	3 5/16" & 1 5/8"	1 5/8"	9"	N18"	6" & 3"	3"	16½"

broadway no. 148 (price group 2)

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width
10"	3" & ½"	1"	8"

futura no. 851 (price group 2)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
3"	5/8"	3/8"	2 7/16"	N 12"	2½"	1¾"	9¾"
4"	13/16"	¾"	3¼"	N 14"	2 1/16"	2"	11⅜"
5"	1 1/16"	⅞"	4⅛"	N 16"	3 3/8"	2¼"	13"
6"	1¼"	1"	4⅞"	N 18"	3 13/16"	2½"	14¾"
8"	1 11/16"	1¼"	6½"	N 24"	5⅛"	3"	20"
N10"	2⅛"	1½"	8¼"				

architectural no. 754 (prismatic face) (price group 2)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
1⅜"	9/32" & 5/32"	¼"	1½"	10"	1⅜" & ⅞"	¾"	9½"
2"	3/8" & 5/16"	¼"	1¾"	12"	1½" & ¾"	¾"	11½"
3"	7/16" & ¼"	7/16"	2½"	14"	1⅞" & 1⅛"	¾"	13"
4"	5/8" & ⅜"	⅜"	3½"	15"	2 3/16" & 1 5/16"	¾"	15"
5"	5/8" & 5/16"	⅜"	4½"	18"	2⅝" & 1 5/16"	¾"	17"
6"	⅞" & ½"	¾"	5½"	20"	2⅝" & 1⅜"	¾"	18"
8"	1⅛" & 5/8"	¾"	7½"	24"	2 1/16" & 1⅛"	¾"	21"

chicago 951 (price group 2)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ&

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
4"	7/16	3/8"	2¾"	12"	1⅜"	1⅛"	8"
6"	11/16	5/8"	4"	15"	1¾"	1⅜"	10"
9"	1"	⅞"	6"	18"	2"	1½"	12"

price list (group 2)

*N Suitable for Silhouette neon lighting

Letter Height	ALUMINUM: #5 Natural Satin, #6 Bronze Metallic, #7 Perma-Coat, #9 Aluminum Metallic	ALUMINUM: #8 Satin Alumilite	BRONZE: #12 Natural Satin or #13 Oxidized
1½"	$2.00	$2.50	$3.00
2"	2.50	3.00	3.75
3"	3.30	3.80	4.95
4"	4.40	4.90	6.60
5"	5.40	5.95	8.10
6"	5.90	6.50	8.85
8"	8.15	9.00	14.25
9"	9.15	10.10	16.05
10"	10.20	11.25	17.85
12"	12.45	13.70	24.85
14"	14.50	15.95	29.00
15"	16.00	17.60	32.00
16"	19.25	21.20	38.50
18"	23.10	25.45	46.20
20"	30.80	33.90	Not Available
24"	36.30	40.00	

CAST METAL LETTERS stock design

price group 1

kabel no. 751 (price group 1)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
1½"	¼"	¼"	1"	10"	1 9/16"	1 1/16"	7"
2"	¼"	¼"	1½"	12"	1 11/16"	¾"	8"
3"	½"	¼"	2"	14"	1⅞"	1 5/16"	9"
4"	1 1/16"	¼"	2¾"	15"	2"	⅞"	10"
5"	1 3/16"	½"	3½"	16"	2 1/16"	⅞"	11"
6"	⅞"	½"	4"	18"	2¼"	1"	12"
8"	1¼"	⅝"	5"	20"	2 9/16"	1⅛"	13"

broadway no. 758 (price group 1)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
6"	1 1/16" & 9/16"	9/16"	6"	12"	2¾" & ¾"	¾"	12"
8"	2" & ¾"	⅝"	8"	16"	3⅜" & 1¼"	1"	13"
10"	2 5/16" & 9/16"	¾"	10"				

gothic no. 852 (price group 1)

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
6"	1⅛"	¾"	4"	15"	2¾"	1⅜"	10"
9"	1⅝"	1"	6"	18"	3¼"	1⅜"	12"
12"	2¼"	1⅛"	8"				

broadway no. 128 (price group 1)

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width
8"	3" & ½"	1"	7"

modern gothic no. 225 (price group 1)

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

Letter Height	Face Width	Letter Depth	Average Letter Width	Letter Height	Face Width	Letter Depth	Average Letter Width
8"	⅞"	½"	5"	16"	1¾"	1"	10"
12"	1¼"	¾"	7½"				

price list (group 1)

Letter Height	ALUMINUM		BRONZE
	# 5 Natural Satin # 6 Bronze Metallic # 7 Perma-Coat # 9 Aluminum Metallic	#8 Satin Alumilite	#12 Natural Satin or #13 Oxidized
1½"	$2.00	$2.50	$3.00
2"	2.50	3.00	3.75
3"	3.30	3.80	4.95
4"	3.85	4.35	5.80
5"	4.40	4.90	6.60
6"	5.50	6.05	8.25
8"	6.60	7.30	9.90
9"	7.15	7.90	11.55
10"	7.70	8.50	12.50
12"	10.45	11.50	15.70
14"	12.90	14.20	22.50
15"	14.15	15.60	24.65
16"	15.40	16.95	26.95
18"	17.60	19.40	30.80
20"	21.50	23.65	37.75



Citizens & Southern National Bank of S. C., Spartanburg, S. C.
Architect: H. Lloyd Hill, Atlanta, Ga.
Contractor: Mason & Holden, Spartanburg, S. C.

time and temperature signs

A specialty for BANKS and BUILDING & LOAN ASSOCIATIONS.

Buy, or lease, with confidence from the Nation's leading SIGN DESIGNERS. Mechanical numeral control equipment by Time-O-Matic, Inc., of Danville, Illinois.

SELECTION OF LAMP SIZE:

Size of the numeral and of the lamp bank should be determined by the maximum viewing distance and installation conditions, rather than by size of the sign alone.

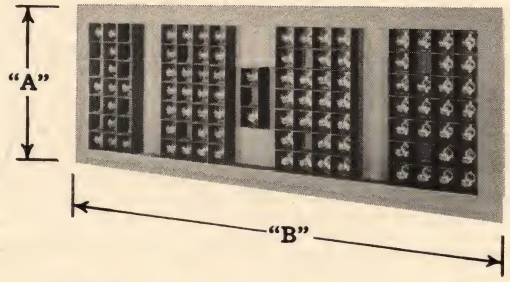
As a minimum, one foot of numeral height should be provided for each five hundred feet of viewing distance. For greater legibility or impact, larger numerals should be used.

Selection of numeral style and lamp spacing determines the width and height of the lamp bank.

time and temperature signs

It is strongly recommended the sign be designed around the size and style of numeral selected. Bright trim, or light paint, should be kept away from the lamp bank to assure legibility. A black border, at least three times the lamp spacing dimension, is required around the numerals. This non-reflective border is provided in part by the lamp bank and its flange. Additional border space should be provided by painting the sign.

The opening required in the sign for the lamp bank should be **one-half inch** larger than the dimensions shown below to provide clearance.



LAMP BANK OPENING DIMENSIONS

Numeral Style	Lamp Spacing Center to Center in inches	Numeral Height in inches	(Dimension "A") Lamp Bank Height in inches	(Dimension "B") Length Time-O-Temp
R 4 x 7 Round Open-throat	3"	21"	26"	71"
	4	28	33	93
	5	35	40	115
B 5 x 9 Square	3	27	32	83
	4	36	41	109
	5	45	50	135
W 5 x 9 Round	3	27	32	83
	4	36	41	109
	5	45	50	135
K 6 x 9 Round Open-throat	3	27	32	92
	4	36	41	121
	5	45	50	150

LAMP BANK DIMENSIONS—
1" flange used for mounting not included in dimensions

Space does not permit incorporation of all the necessary details. Send us your preliminary plans so we can make recommendations for incorporation in your plans and specifications. (No obligations, of course.)

NUMERAL STYLES:

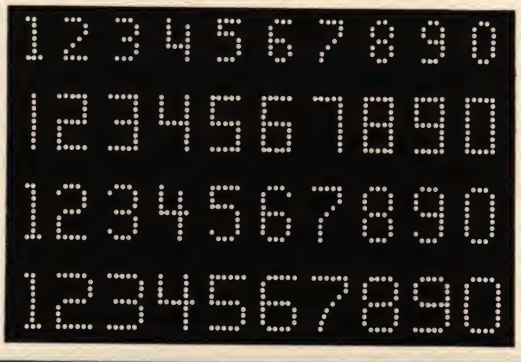
The four most popular numeral styles are shown in Figure (1). Size of the numeral and style should be selected to meet each installation. Styles such as B and K are most legible at extreme distances and where atmospheric haze is a factor.

Style R 4 x 7 Round Open-throat

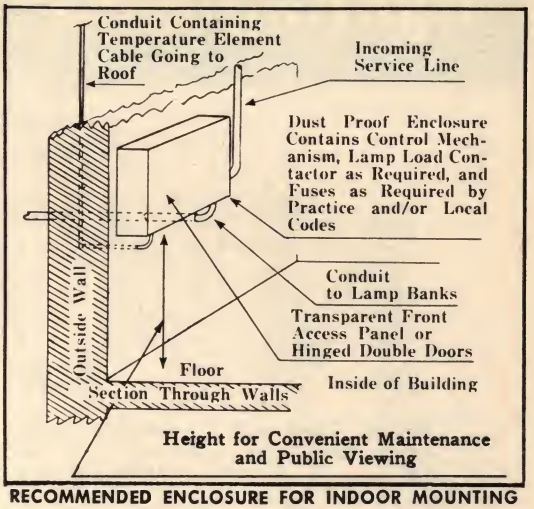
B 5 x 9 Square

W 5 x 9 Round

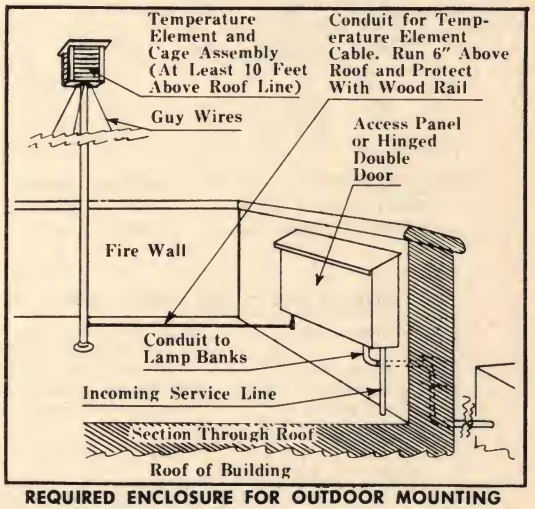
K 6 x 9 Round Open-throat



HOUSING THE CONTROLS



RECOMMENDED ENCLOSURE FOR INDOOR MOUNTING



REQUIRED ENCLOSURE FOR OUTDOOR MOUNTING

specifications

Furnish and install the double face Projecting sign incorporating the style "R" numeral type time and temperature indicating panel as shown on sheet 4 and detailed on sheet 6 shall be as manufactured by Colonial-Hites Company, West Columbia, S. C.

This contract to include the style R lamp bank, complete with 40 watt long life traffic signal lamps. The numeral control equipment to be "Time-O-Temp" as manufactured by Time-O-Matic, Incorporated and shall be complete with proper enclosure. The temperature sensing element shall be properly located in ventelated cage assembly. All controls, connecting wiring and component equipment necessary for the proper and accurate operation of the sign, whether or not specifically mentioned herein shall be included to satisfy the full intent of the drawings and these specifications.

This contract to also include all labor, material, equipment and services necessary for the erection, electrical connection and adjusting the sign and time and temperature equipment. The work shall be performed in a workmanlike manner by skilled craftsmen with previous experience in connecting and adjusting this type highly sensitive electronic equipment.

This contractor shall give a written guarantee for free service and replacement of all lamps, materials and component electrical equipment for a period of one year from acceptance. The owner to carry insurance under his floater policy to cover damages by external causes and acts of God.

The sign contractor shall further submit to the general contractor for the owners consideration a complete maintenance contract to take effect upon the expiration of the guarantee period. This to be on an annual basis to continue for an additional four years.

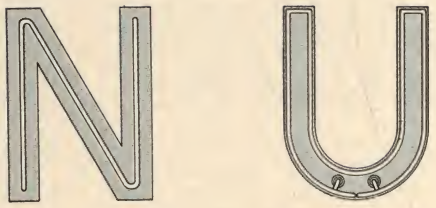
THE FOLLOWING ITEMS SHOULD BE INCLUDED IN THE ELECTRICAL SPECIFICATIONS

(1) Necessary conduit and wiring to furnish 1-100 amp circuit to the fused circuit breaker load center which will be furnished by the sign contractor and be located in the sign control box.

(2) Install 2" conduit from sign control box to the sign location with 6" stub out. The sign contractor to complete the conduit run to the sign and install sign control wiring.

(3) Install ½" conduit from sign control box to location of the temperature element cage assembly with 6" stub out.

lighting data



Multiply height of BLOCK LETTERS BY 3.0

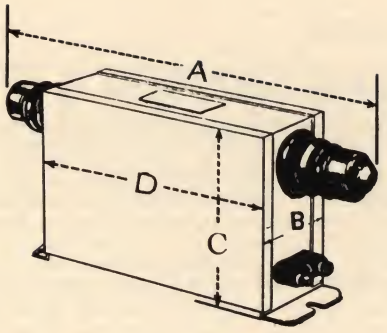
Multiply height of DOUBLE NEON LETTERS BY 5.0



Multiply height of DOUBLE NEON SCRIPT LETTERS BY 7.0



Multiply height of SCRIPT LETTERS BY 5.0



Transformer		A	B	C	D
3000 V	60 MA NPF	10¾″	3″	3¾″	8″
4000 V	60 MA NPF	13¼″	3¼″	5¼″	9″
5000 V	60 MA NPF	13¼″	3½″	5¼″	9″
6000 V	60 MA NPF	13½″	4″	5¾″	9″
7500 V	60 MA NPF	13¾″	4¾″	6¾″	9½″
9000 V	60 MA NPF	13¾″	4¾″	6¾″	9½″
12000 V	60 MA NPF	13½″	5″	6⅛″	9½″
15000 V	60 MA NPF	13¾″	5½″	6¼″	9½″

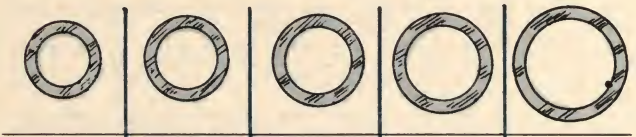
footage chart *for neon, clear, fluorescent tubing—outdoor application*

Standard Transformer Specifications		RED—RUBY RED—ROSE PINK—COPPER GOLD Clear or Fluorescent — Neon Filled Tubes — For Outdoor Application					BLUE—POWER BLUE—WHITE NOVIAL GOLD—GREEN For Outdoor Application — Clear Or Fluorescent — Mercury Filled Tubes —					Standard Transformer Specifications		
Secondary Voltage	Short Circuit M. A.	TUBE SIZE IN MILLIMETERS					TUBE SIZE IN MILLIMETERS					Capacity V. A.*	Approx. WATTS Consumption at 115 Volts 60 Cycles	Amperage
		10	11	12	13	15	10	11	12	13	15			
15000	60											820	466	7.83
	30	33′	39′	45′	50′	60′	30′	35′	40′	45′	54′	450	234	3.92
12000	60											720	374	6.26
	30	25′	30′	35′	39′	45′	22′	27′	31′	36′	40′	360	187	3.13
9000	60											500	281	4.70
	30	19′	22′	26′	29′	33′	17′	20′	23′	26′	30′	250	140	2.44
7500	60											450	234	3.92
	30	13′	16′	20′	22′	24′	12′	15′	18′	20′	21′	230	117	2.04
6000	60											300	187	3.13
	30	11′	13′	16′	17′	19′	10′	12′	14′	15′	17′	180	94	1.74
5000	60											300	156	2.61
	30	9′	10′	12′	15′	17′	8′	9′	12′	14′	15′	150	83	1.39
4000	60											140	125	2.08
	30	7′	8′	10′	11′	13′	6′	7′	10′	11′	12′	90	73	1.22
3000	60											100	94	1.57
	30	6′	7′	8′	9′	10′	5′	6′	7′	8′	9′	72	52	.96
2000	30	3′	4′	5′	5′	6′	3′	4′	4′	4′	5′	46	26	0.65
RECOMMENDED GAS PRESSURES IN MM.		13	12	11	10	9	13	12	11	10	9	RECOMMENDED GAS PRESSURES IN MM.		

IMPORTANT—DEDUCT 1 FOOT FROM ABOVE FIGURES FOR EACH PAIR OF ELECTRODES

*For approximate V.A. ratings of high power factor type transformers, multiply standard ratings listed by 55%.

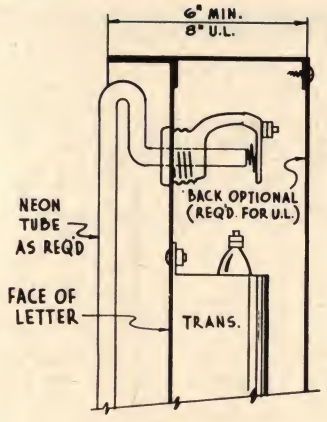
fluorescent tube sizes in mm.



Recommended to be powered by 30 MA transformers for silhouette lighting and 60 MA transformers for translucent plastic faces.

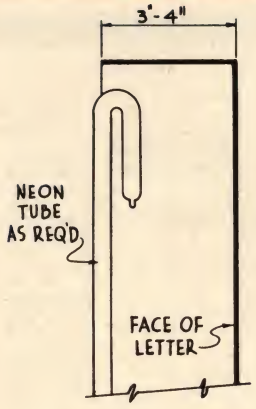
Certain cities require High Power Factor type transformers. This in no way improves the performance of the sign itself but is required to meet local power company regulations. Check with your City Electrical Department or Power Company before writing your specifications.

construction methods - lighted letters



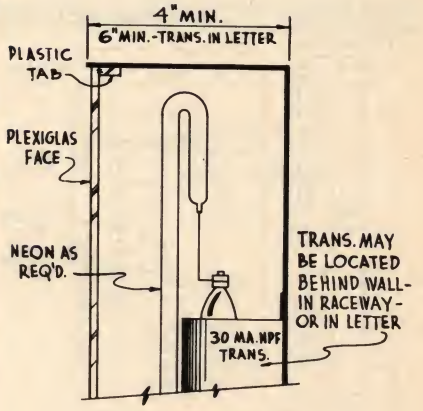
FL-TYPE B

FACE LIGHTED LETTER - 18" HI. & UP
FAB. ALUM. OR STAINLESS STEEL



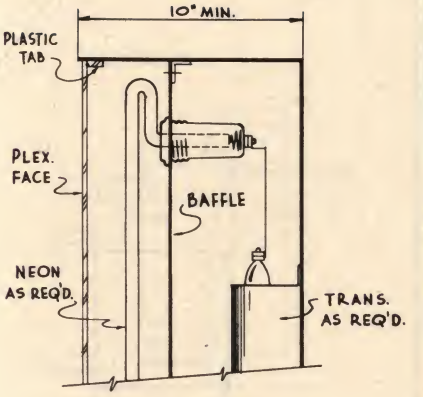
FL-TYPE C

FACE LIGHTED LETTER - 12" HI. & UP
WELDED ALUM. OR STAINLESS STEEL



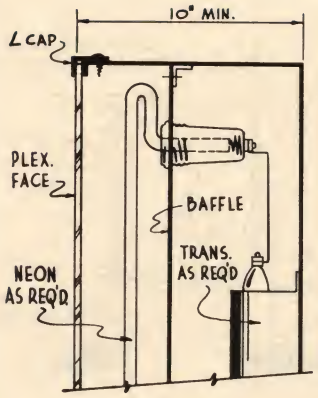
PL-TYPE J

PLASTIC FACE LETTER - 12" TO 42" HI.
WELDED ALUM. OR STAINLESS STEEL



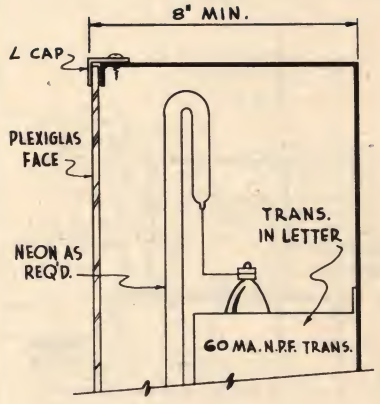
PL-TYPE E

PLASTIC FACE LETTER - 24" TO 42" HI.
WELDED ALUM OR STAINLESS STEEL (U.L.)



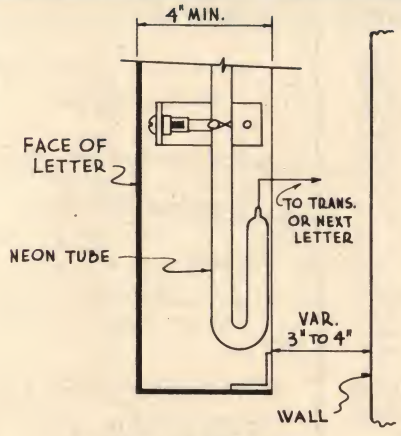
PL-TYPE H

PLASTIC FACE LETTER - 42" HI. & UP
WELDED ALUM. OR STAINLESS STEEL (U.L.)



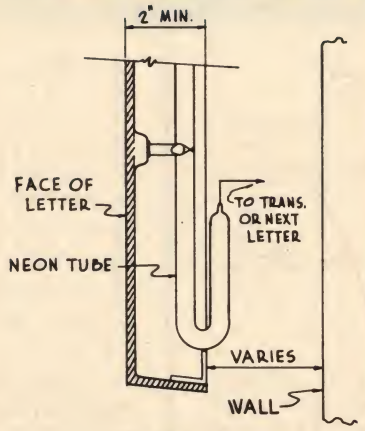
PL-TYPE K

PLASTIC FACE LETTER - 42" HI. & UP
WELDED ALUM. OR STAINLESS STEEL



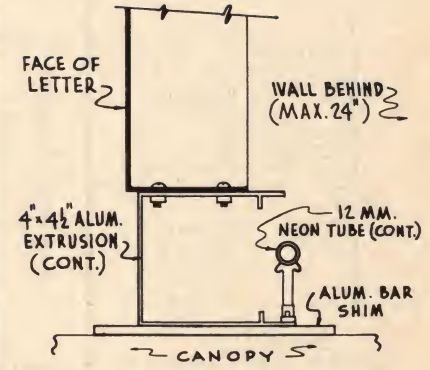
SL-TYPE C

SILHOUETTE LIGHTED LETTERS - 12" HI. & UP
WELDED ALUM. OR STAINLESS STEEL



SL-TYPE A

SILHOUETTE LIGHTED LETTERS
CAST ALUMINUM - 12" TO 24" HI.

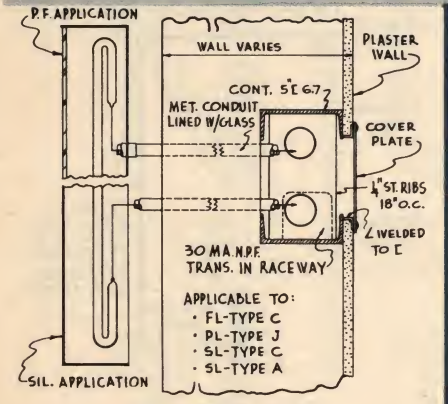


SL-TYPE D

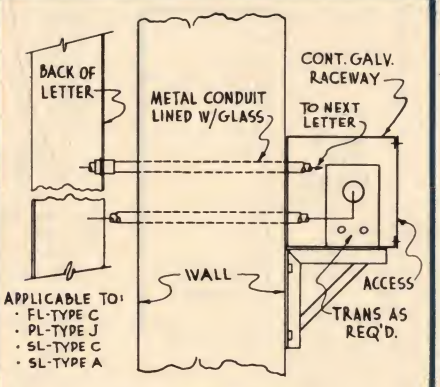
SILHOUETTE LIGHTED LETTER
CAST OR WELDED ALUM. OR S.S.

wiring methods

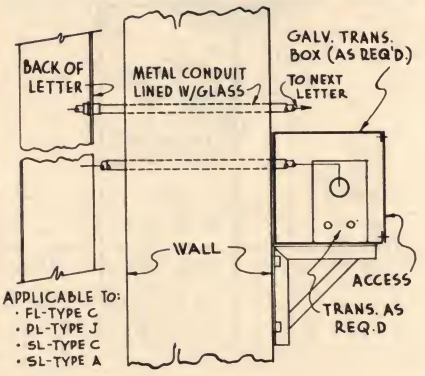
WIRING METHODS — TRANSFORMERS BEHIND WALL — LIGHTED LETTERS



1W-TYPE A
IN-THE WALL TRANS. & WIRING RACEWAY

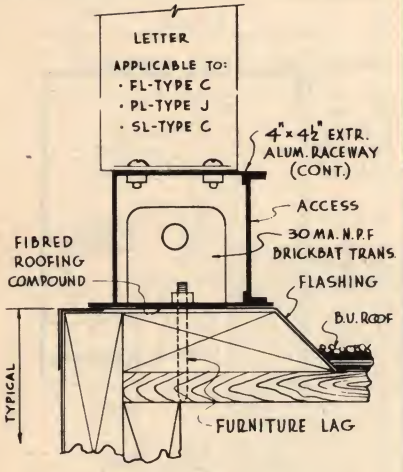


BW-TYPE B
CONTINUOUS RACEWAY BEHIND WALL

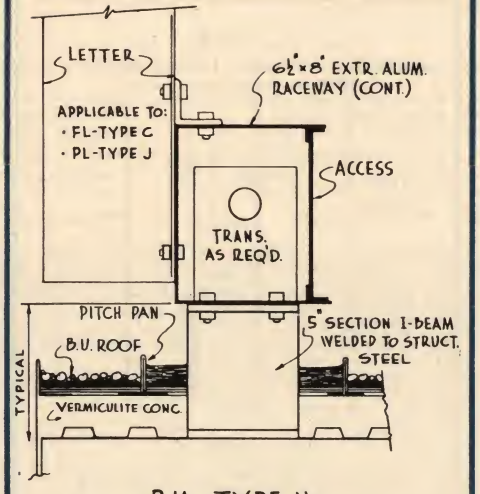


BW-TYPE C
TRANSFORMER BOXES BEHIND WALL

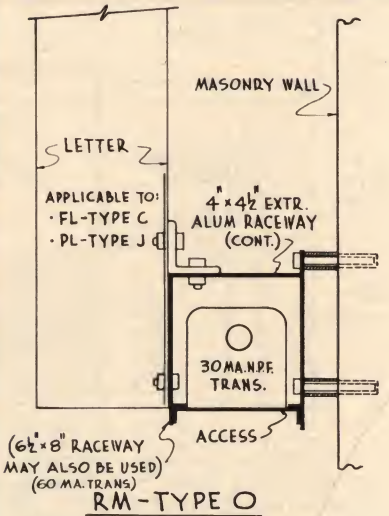
RAIL MOUNTING METHODS — LIGHTED LETTERS



RM-TYPE M
RACEWAY MOUNTED TO CANOPY

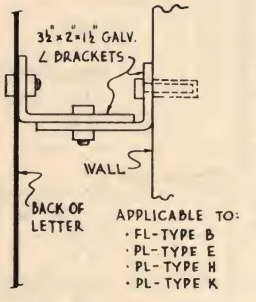


RM-TYPE N
RACEWAY MOUNTED TO CANOPY

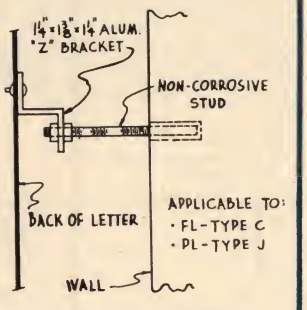


RM-TYPE O
RACEWAY MOUNTED TO WALL

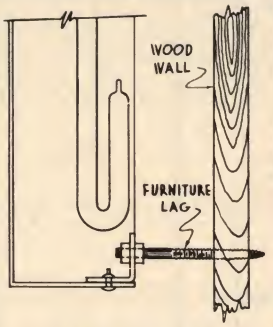
WALL MOUNTING METHODS — LIGHTED LETTERS



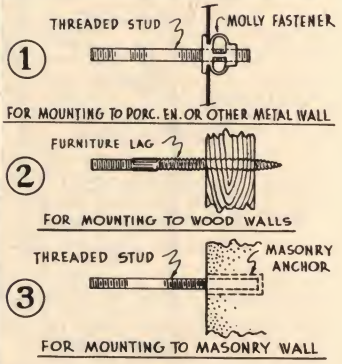
WM-TYPE Y
MOUNTING METHOD FOR LETTERS W/BACKS - LIGHTED OR UNLIGHTED



WM-TYPE Z ①②③
MOUNTING METHOD FOR LETTERS W/BACKS - LIGHTED OR UNLIGHTED



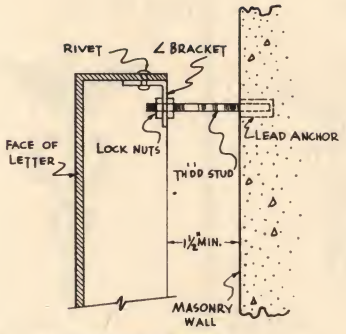
WM-TYPE W ①②③
MOUNTING FOR SILHOUETTE LIGHTED LETTERS



WALL ATTACHMENTS
FOR WM TYPE Z *and* WM-TYPE W

ALSO SPECIAL MOUNTINGS TO FIT YOUR REQUIREMENTS

mounting details - non-lighted letters

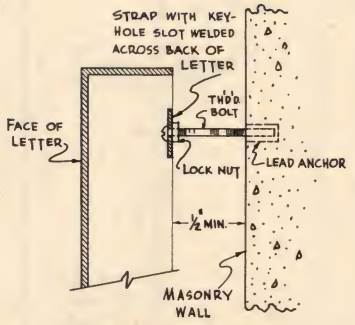


MOUNTING DETAIL

PM-TYPE B

PARALLEL MOUNTING TO MASONRY

CAST OR FAB. REVERSE CHANNEL LETTERS

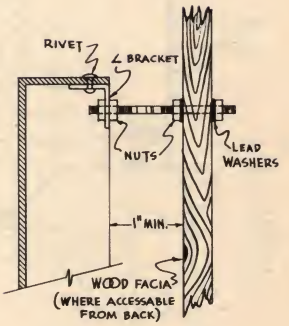


MOUNTING DETAIL

PM-TYPE C

PARALLEL MOUNTING TO MASONRY

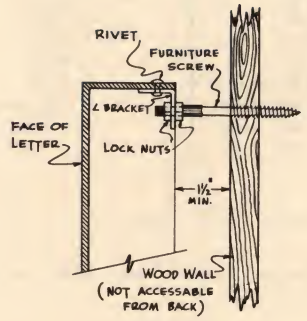
CAST OR FAB. REVERSE CHANNEL LETTERS



PM-TYPE F

PARALLEL MOUNTING TO BACKGROUNDS

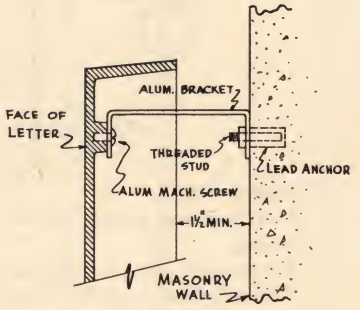
CAST OR FAB. REVERSE CHANNEL LETTERS



PM-TYPE G

PARALLEL MOUNTING TO WOOD

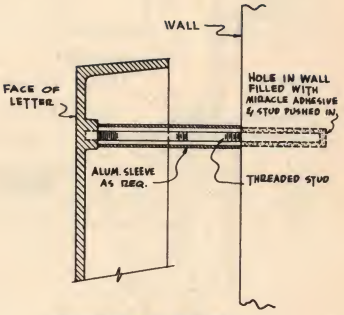
CAST OR FABRICATED REV. CHANNEL LETTERS



PM-TYPE D

PARALLEL MOUNTING TO MASONRY

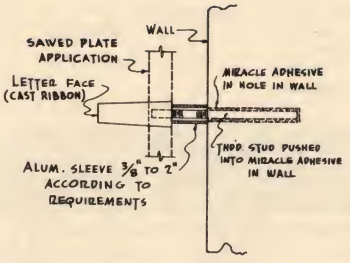
CAST REVERSE CHANNEL LETTERS



MOUNTING DETAIL

PM-TYPE K

CAST REVERSE CHANNEL LETTERS

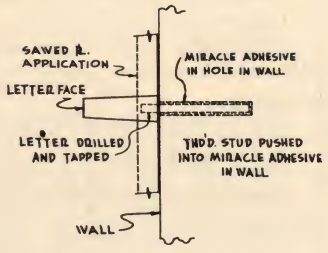


MOUNTING DETAIL

PM-TYPE L

SOLID CAST LETTERS

SAWED PLATE LETTERS

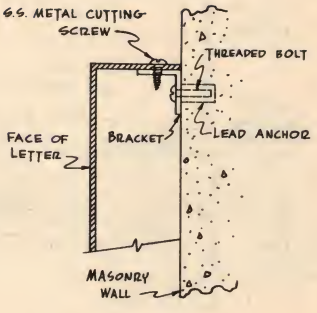


MOUNTING DETAIL

FM-TYPE E

FLUSH MOUNTING

SOLID CAST LETTERS - SAWED PLATE LETTERS

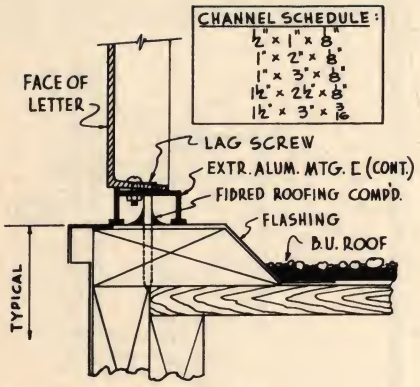


FM-TYPE F

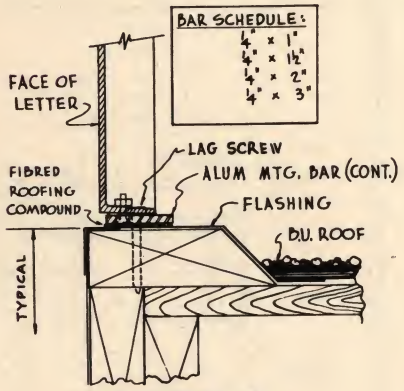
FLUSH MOUNTING TO MASONRY

FABRICATED OR CAST LETTERS

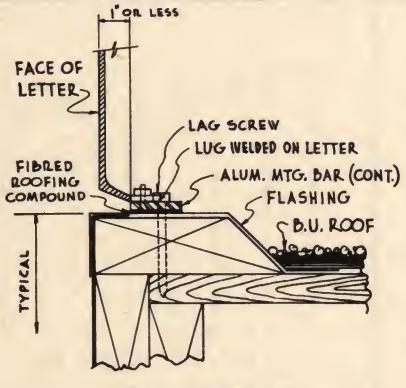
mounting details



BM-TYPE A
BASE MOUNTED ON CHANNEL
FABRICATED OR CAST LETTERS



BM-TYPE B
BASE MOUNTED ON BAR
FABRICATED OR CAST LETTERS



BM-TYPE C
LETTER WITH LUG - BASE MOUNTED TO BAR
CAST LETTER ONLY

SPECIAL STOCK DESIGN ITEMS

caducei

STYLE NO. 52



Stock sizes
24" high
36" high
60" high

STYLE NO. 53



Stock size
12" high

STYLE NO. 55



Stock size
52" high

STYLE NO. 50



Stock size
15" high

STYLE NO. 51



Stock sizes
48" high
60" high
96" high

STYLE NO. 54



Stock sizes
36" high
84" high

materials

Cast aluminum caducei are cast of F-214 alloy aluminum ingots.

finish

Sandblasted aluminum (coated with clear lacquer) or any color baked-on enamel. Also, sandblasted aluminum, alumilited.

sizes and styles

Designs illustrated are from our stock patterns. Sizes other than those shown can be furnished with a small pattern charge.

colors

Standard baked-on enamel finishes come in the following colors: Red, yellow, orange, blue, gloss black, dull black, white, green, turquoise, cream, brown or maroon (chart available on request).

mounting

Casting drilled and tapped for ¼" mounting studs.

specifications

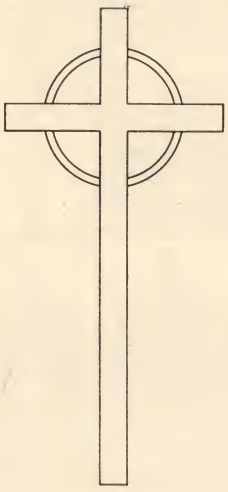
The Caduceus shown on the plans will be Style No. 52 as manufactured by Colonial-Hites Company of West Columbia, S. C. The caduceus will be 60" high, which is listed as a stock pattern. This caduceus will have a BAKED-ON ENAMEL (COLOR SELECTED) finish. Detail shop drawings to be submitted for approval prior to fabrication.

prices

Style	Size	Sandblasted Aluminum (coated with clear lacquer or baked-on enamel.)	Sandblasted Aluminum Alumilited
50	15"	$ 38.00	$ 48.00
51	48"	138.00	178.00
51	60"	190.00	235.00
51	96"	575.00	712.00
52	24"	80.00	96.00
52	36"	105.00	135.00
52	60"	160.00	205.00
53	12"	28.00	38.00
54	36"	125.00	155.00
54	84"	650.00	780.00
55	52"	140.00	185.00

crosses

TYPE #1



EXTRUDED ALUMINUM TUBING



#101 #102

AVAILABLE SIZES

1" x 1"
1" x 2"
1¾" x 4"
1¾" x 5"
2" x 2"
2" x 5"
3" x 3"
4" x 4"

EXTRUDED ALUMINUM CHANNEL



#103

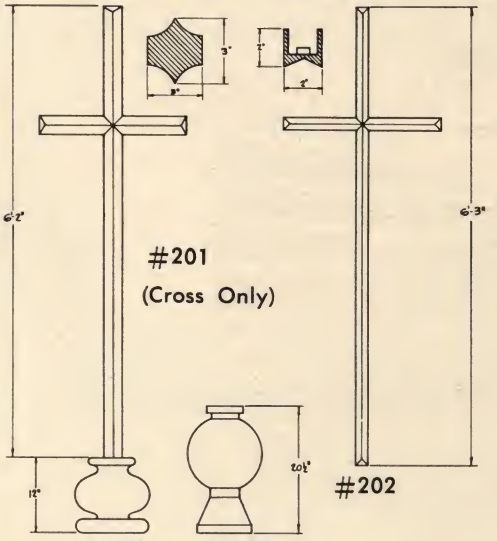
AVAILABLE SIZES

1" x 1" x 1"
1" x 2" x 1"
1" x 3" x 1"
1¾" x 3" x 1¾"
2" x 5" x 2"
4½" x 4" x 4½" *

* Available With Screwed On or Welded On Back.

CAST ALUMINUM - STOCK PATTERNS

TYPE #2



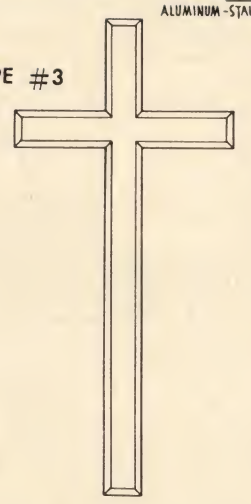
#201
(Cross Only)

#202

#BS-1 #BS-2

BRAKE FORMED SHAPES
ALUMINUM - STAINLESS STEEL - SHEET BRONZE - PORCELAIN EN.

TYPE #3





#302



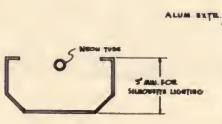
#303



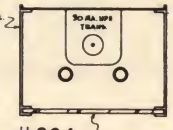
#304



#305



#301

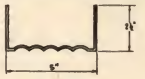


#306

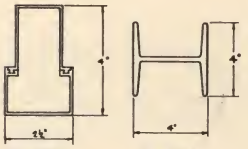
SPECIAL ALUMINUM EXTRUSIONS

TYPE #4

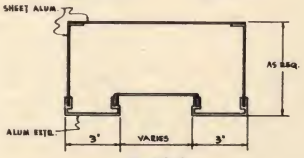




#402



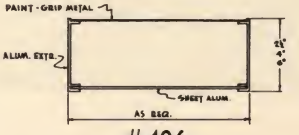
#403 #404



#405



#401



#406

materials

Extruded aluminum sections as illustrated. #302, 18-8 alloy, #4 polish stainless steel. Cast aluminum crosses are cast of F-214 alloy. Commercial bronze sheet (copper 90%, zinc 10%).

sizes and styles

Any design or size can be reproduced — either by casting or fabrication. The fabricated units are the more economical.

finishes

Aluminum: Natural, alumilite, baked-on enamel.
Stainless Steel: #4 polish.
Sheet Bronze: Satin or oxidized.

mounting

As required by job conditions. Free standing crosses may require special internal bracing.

specifications

The cross shown on the plans will be Design No. 302 as manufactured by Colonial-Hites Co. of West Columbia, S. C. The cross will be fabricated from .091" ALUMINUM in dimensions detailed in the plans and will have a NATURAL ALUMINUM finish. Cross shall be mounted 2" FROM WALL with rustproof hardware.

prices

Quoted on request. Please furnish take-off and/or all necessary information.

TYPICAL INSTALLATIONS



ILLUMINATED PLEXIGLAS* FACE LETTERS

Circular discs, 7'10" diameter. Pans have #2030 green Plexiglas* faces internally illuminated. Letters S C N, 52" high, set in face, internally illuminated independent of background, letters SOUTH CAROLINA NATIONAL BANK, 12" high, 951 Chicago style, gray enamel finish.



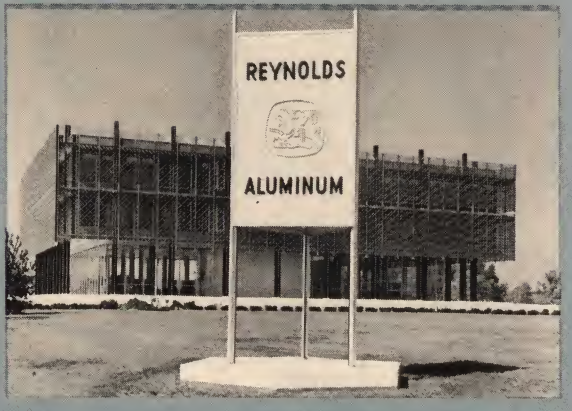
PROJECT SIGN — STEEL PIPE FRAME

.091" aluminum face panels, with channel face letters. Sign 22'0" wide x 31'8". P-5'5", ARKLAND 3'1", SHOPPING CENTER, 24" high, all 3" deep, white baked-on enamel. Double white 15 MM neon tubes on PARKLAND, single white 15 MM neon tubes on SHOPPING CENTER.



ILLUMINATED PLEXIGLAS* FACE LETTERS

Masters 36" and 24" high, white faces. Bowling Lanes 24" high, white faces. Fabricated of .091" aluminum, enameled white, with translucent Plexiglas* faces, white neon tubing for lighting. Ball 67" high, ½ round, pin 120" high, ½ round. Moulded of clear Plexiglas*, processed in colors. Internally lighted by H. O. T-12 lamps and 800 MA ballasts.



ILLUMINATED PLEXIGLAS* FACE LETTERS

Triangular pylon sign. Panels 9'0" x 6'0" of W7328 white Plexiglas*. Letters Reynolds Aluminum, 10" high, ¾" deep, .125" welded aluminum black enamel, attached with studs. Emblem of cast aluminum, anodized natural. Lighting by H. O. T-12 lamps and 800 MA ballasts.

Colonial-Hites Company

232 Parson Street, West Columbia, S. C., Phone ALpine 6-0606

regional offices

NEW YORK 3, N. Y.	229 Park Avenue South	AL 4-3848
GREENSBORO, N. C.	2103 W. Lee Street	BR 5-7609
JACKSONVILLE 11, FLA.	2441 Sam Road	RA 5-1544
ATLANTA 9, GA.	1366 Peachtree Street, N. E.	TR 6-0525
CLEVELAND 14, OHIO	1470 Chester Avenue	MA 1-5879

distributors in principal cities throughout U. S. A.



INTERNATIONAL BRONZE TABLET COMPANY, INC.

150-154 WEST 22nd ST. • NEW YORK 11, N. Y.

6f
In

honor rolls
war memorials
church tablets
testimonial plaques
sculptured portraits
historical markers
contest awards
name plates

design

The International Bronze Tablet Co. Inc., is a long established corporation devoted exclusively to the design and manufacture of bronze and other metal tablets, plaques, signs, nameplates, architectural letters and numerous kindred products. For this purpose we maintain a staff of highly skilled designers and artisans who create and fabricate metal work according to standard patterns or to individual specifications.

consulting service

Our consulting departments offer to the architect, engineer and contractor the benefit of their knowledge and experience without obligation. These departments consist of personnel well trained in historical and contemporary design and in the intricacies of architectural metal work. This is an integral part of our service.

estimates

The International Bronze Tablet Co., Inc. will submit full-size color sketches for approval or will promptly supply careful estimates on any designs submitted.

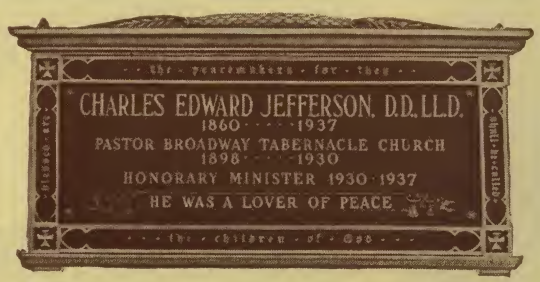
memorial tablets

From time immemorial, rich, dignified bronze has been the appropriate vehicle for our tribute to the departed.

In the hands of the craftsmen of International Bronze Tablet Company, memorial tablets become beautiful, everlasting records of the names and deeds of those who have left us. Genuine, solid International Bronze is expertly cast and painstakingly finished to perfection by skilled artisans.



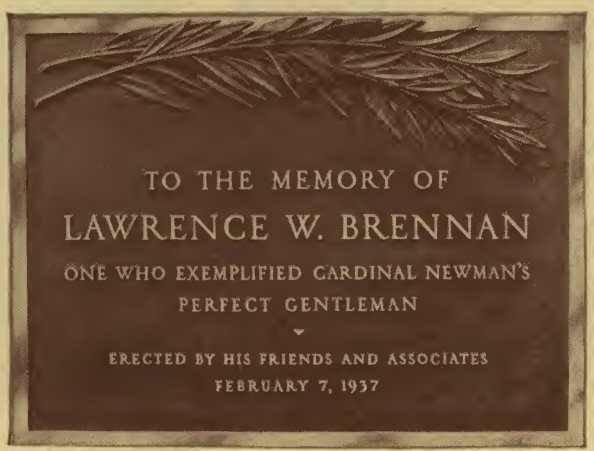
S-5339 22½ x 32 in.



B-3263 47 x 24 in.



G-2022 20 x 26 in.



C-395 24 x 18 in.

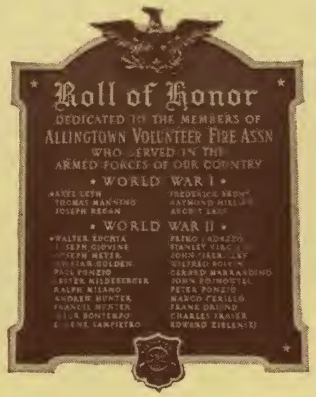
SEND FOR OUR COMPLETE, FULLY ILLUSTRATED CATALOG

military plaques

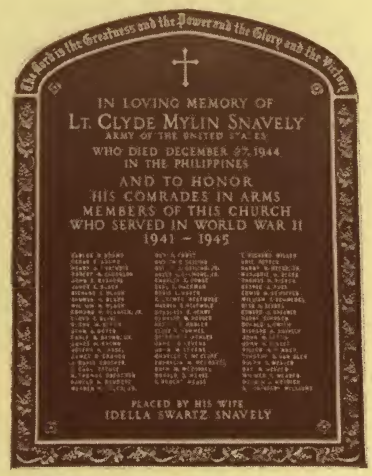
Imperishable bronze for imperishable deeds! Only the "metal of the ages" is a fitting medium for our tributes to those who fought—and those who fell—in the wars of our country.

The subject may be an Honor Roll—a lasting record of the names of those in the armed forces. It may be a memorial tablet dedicated to one or more who made the supreme sacrifice. Or it may be a testimonial plaque for presentation to one whose courage and leadership won the affection of his men.

Whatever the occasion, you may be sure that an International Bronze military plaque will be appropriate . . . impressive in design . . . unsurpassed in craftsmanship . . . reasonable in cost. Many handsome designs are available from stock patterns; in other instances we will gladly submit sketches without charge or obligation, or quote from your own sketch or blueprint.



A-12635 25 x 32 in.



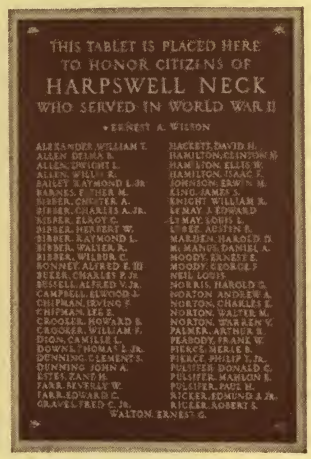
S-13197 24 x 32 in.



S-9981 20 x 12 in.



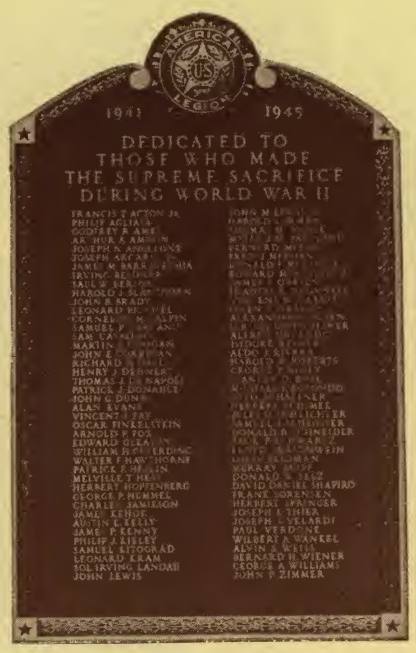
B-12166 24 x 18 in.



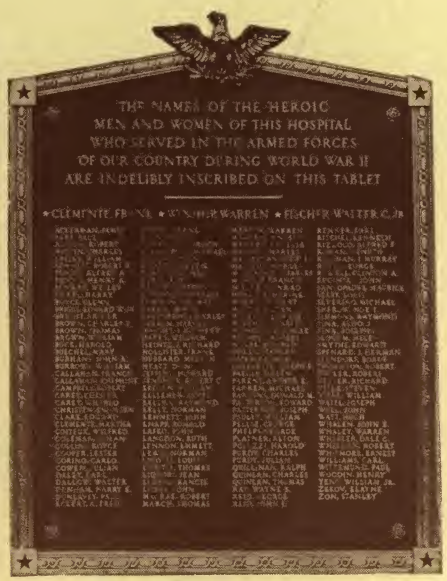
W-12064 20 x 30 in.



S-1947 24 x 36 in.



O-12567 24 x 39 in.



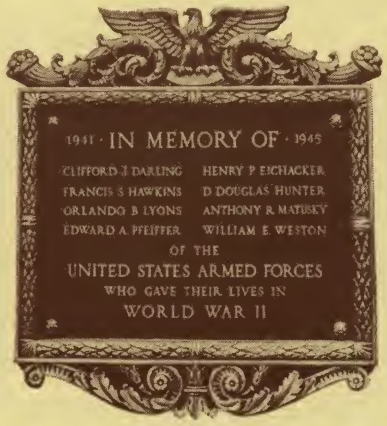
C-13334 35 x 45 in.

commemorative tablets

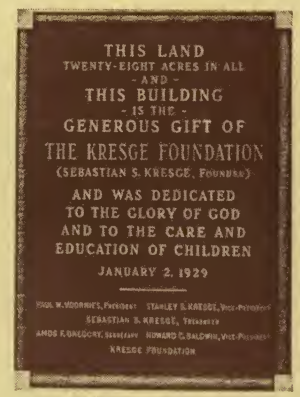
Enduring bronze has long been preferred for commemorative tablets and historical markers. Dignified . . . always in good taste whatever the purpose or location . . . weather resistant beyond all other metals . . . International Bronze tablets of standard or special design are available to fit your needs.



H-2893 24 x 40 in.



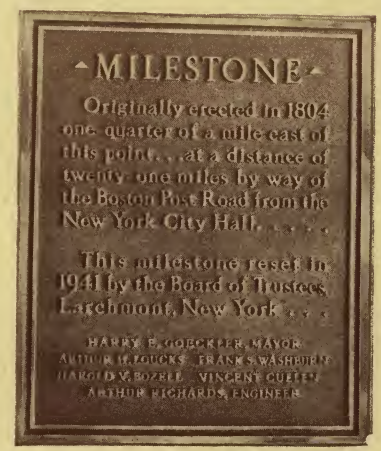
UN-7276 25 x 26 in.



M-1299 18 x 24 in.



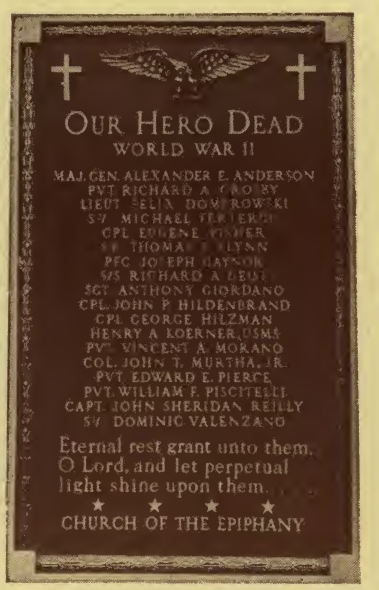
E-603 20 x 12 in.



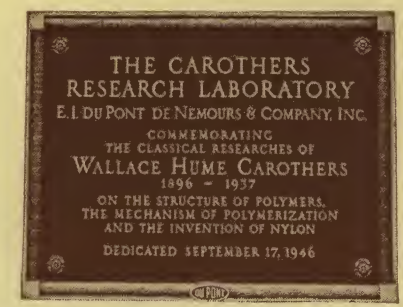
L-3975 15 x 19 in.



D-11990 30 x 40 in.



E-11947 15 x 24 in.

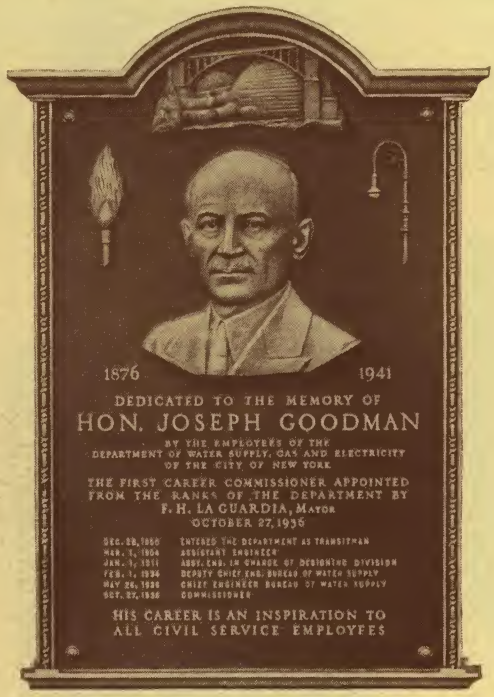


D-13286 24 x 18 in.

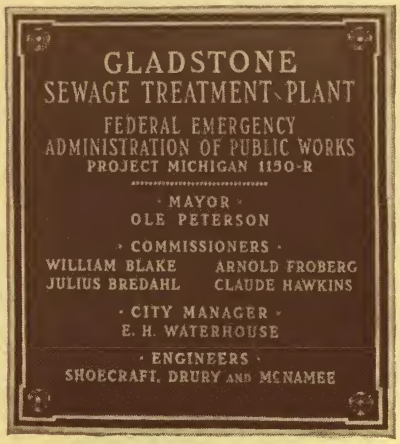
civic tablets

When the occasion arises to mark an important civic achievement or new structure, the natural choice is bronze—impressive, dignified, enduring for all time, whether indoors or out . . . truly the perfect, everlasting record.

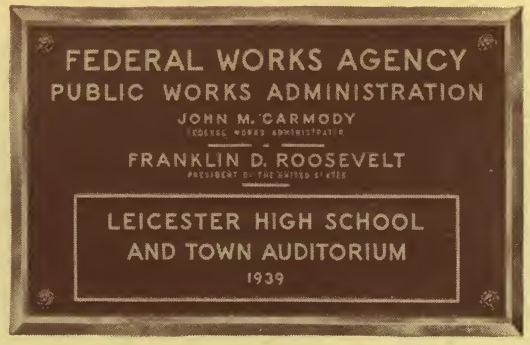
And when your choice is genuine International Solid Bronze you have the further assurance of masterly craftsmanship . . . in design . . . in casting . . . and in the important details of hand finishing that International's artisans apply to every tablet.



B-5321 24 x 34 in.



UN-8432 19 x 22 in.



UN-1692 24 x 15 in.



UN-4397 29 x 26 in.

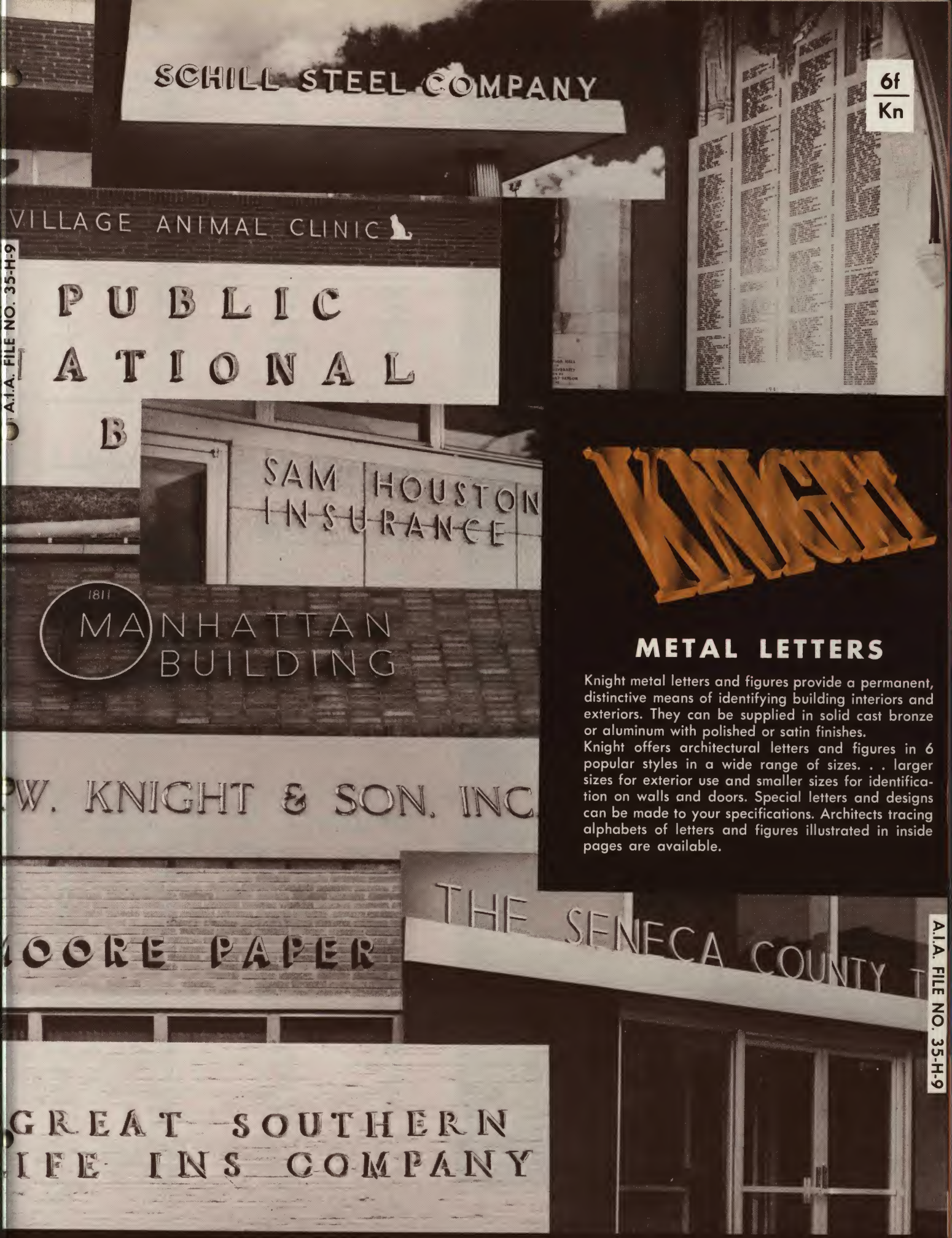


W-1095 24 x 36 in.

write for our 48 page catalog of designs



INTERNATIONAL BRONZE TABLET COMPANY, INC.
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6f
Kn

A.I.A. FILE NO. 35-H-9

KNIGHT

METAL LETTERS

Knight metal letters and figures provide a permanent, distinctive means of identifying building interiors and exteriors. They can be supplied in solid cast bronze or aluminum with polished or satin finishes.

Knight offers architectural letters and figures in 6 popular styles in a wide range of sizes. . . larger sizes for exterior use and smaller sizes for identification on walls and doors. Special letters and designs can be made to your specifications. Architects tracing alphabets of letters and figures illustrated in inside pages are available.

A.I.A. FILE NO. 35-H-9

H. W. KNIGHT & SON, INC., 8 Lane Street, Seneca Falls, N.Y.



RUNIC Conservative, yet well adapted to a variety of uses.

SIZE	AV. WIDTH	STROKE WIDTH	THICKNESS
1/4"	9/32"	1/16"	3/32"
3/8"	5/16"	1/16"	3/32"
1/2"	15/32"	1/16"	3/32"
5/8"	1/2"	1/16"	3/32"
3/4"	9/16"	3/32"	3/32"
1"	25/32"	5/32"	3/32"
1 1/4"	29/32"	5/32"	1/8"
1 1/2"	1 3/32"	3/16"	1/8"
1 3/4"	1 3/8"	3/16"	1/8"
2"	1 1/2"	7/32"	1/8"
2 1/4"	1 9/16"	1/4"	1/8"
2 1/2"	1 5/8"	9/32"	1/8"
2 3/4"	1 3/4"	9/32"	1/8"
3"	1 27/32"	5/16"	5/32"
3 1/2"	2 3/16"	5/16"	3/16"
4"	2 1/2"	11/32"	3/16"



MASSIVE BLOCK For exterior use; can be upright mounted on copings, transoms or canopies.

SIZE	AV. WIDTH	STROKE WIDTH	THICKNESS
1"	3/4"	5/32"	5/32"
1 1/2"	1 1/8"	3/16"	3/16"
2"	1 1/2"	9/32"	9/32"
2 1/2"	2"	3/8"	3/8"
3"	2 1/4"	1/2"	1/2"
4"	3"	11/16"	11/16"
5"	4"	7/8"	7/8"
6"	4 1/2"	1"	1"
8"	6"	1 1/4"	1 1/4"
10"	8"	1 1/2"	1 1/2"
12"	9"	2"	2"



PRISMATIC Roman letters with sharp beveled face.

SIZE	AV. WIDTH	STROKE WIDTH	THICKNESS
1 3/8"	1"	9/32"	1/4"
1 1/2"	1 3/8"	9/32"	1/4"
1 3/4"	1 5/8"	5/16"	1/4"
2"	1 3/4"	3/8"	1/4"
2 1/2"	2 1/16"	13/32"	9/32"
3"	2 5/8"	7/16"	5/16"
3 1/2"	2 7/8"	7/16"	5/16"
4"	3 1/4"	1/2"	5/16"
4 1/2"	3 1/2"	9/16"	3/8"
5"	3 3/4"	5/8"	3/8"
5 1/2"	4 1/8"	11/16"	3/8"
6"	4 1/2"	3/4"	11/32"
7"	5 3/8"	13/16"	13/32"
8"	6"	1"	7/16"
9"	7"	1"	7/16"
10"	7 1/4"	1 1/8"	7/16"
12"	9 1/2"	1 1/4"	5/8"
14"	10 1/2"	1 3/8"	5/8"

CLASSIC Outstanding for beauty and dignity.

SIZE	AV. WIDTH	STROKE WIDTH	THICKNESS
1½"	1 3/16"	3/16"	1/8"
1¾"	1 9/32"	7/32"	1/8"
2"	1 9/16"	1/4"	1/8"
2½"	1 27/32"	9/32"	1/8"
3"	2 3/16"	3/8"	1/8"
3½"	2 7/8"	7/16"	5/16"
4"	3 1/4"	1/2"	5/16"
4½"	3 1/2"	9/16"	3/8"
5"	3 3/4"	5/8"	3/8"
5½"	4 1/8"	11/16"	3/8"
6"	4 1/2"	3/4"	7/16"
7"	5 3/8"	13/16"	7/16"
8"	6"	1"	7/16"
9"	7"	1 1/16"	7/16"
10"	7 1/4"	1 1/8"	7/16"
12"	9 1/2"	1 1/4"	1/2"



SANS SERIF Modern, ribbon-like letters; can be upright mounted on copings, transoms or canopies.

SIZE	AV. WIDTH	STROKE WIDTH	THICKNESS
1"	19/32"	3/32"	7/32"
1½"	27/32"	1/8"	9/32"
2"	1 9/16"	7/32"	13/32"
2½"	1 3/4"	1/4"	1/2"
3"	2"	9/32"	9/16"
4"	2 5/8"	5/16"	11/16"
5"	3 5/16"	11/32"	13/16"
6"	4"	3/8"	1"
8"	5 5/16"	13/32"	1 1/4"
10"	6 3/8"	7/16"	1 1/2"
12"	8"	15/32"	1 3/4"
14"	10 1/2"	1/2"	2"



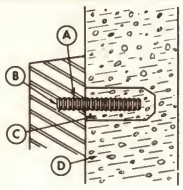
GOTHIC BLOCK For modern interior doors and exterior signs.

SIZE	AV. WIDTH	STROKE WIDTH	THICKNESS
1/4"	1/4"	1/32"	3/32"
5/16"	9/32"	1/16"	3/32"
3/8"	5/16"	1/16"	3/32"
1/2"	13/32"	1/16"	3/32"
5/8"	7/16"	3/32"	3/32"
3/4"	9/16"	1/8"	3/32"
1"	3/4"	5/32"	3/32"
1¼"	1"	5/32"	3/32"
1½"	1¼"	3/16"	3/32"
1¾"	1 13/32"	1/4"	3/32"
2"	1 9/16"	9/32"	3/32"
2½"	2"	3/8"	1/4"
3"	2 3/8"	1/2"	1/4"
4"	3 5/16"	11/16"	1/4"
5"	4 5/32"	7/8"	1/4"
6"	5"	1 1/16"	1/4"
8"	6 21/32"	1 7/16"	3/8"
10"	8 5/16"	1 13/16"	3/8"
12"	10"	2 3/16"	3/8"
14"	12"	2 5/16"	1/2"



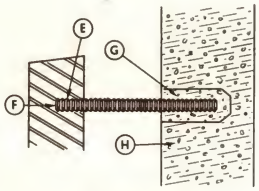
INFORMATION
On Installing, Finishes and Ordering METAL LETTERS

INSTALLING



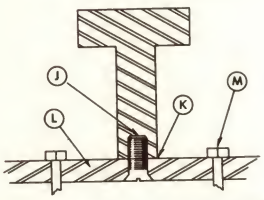
FLUSH MOUNTING

(A) Letter drilled and tapped (letter sizes below 4", studs are cast integrally). (B) Threaded stud (bronze or aluminum). (C) Oversized hole for stud, filled with quick setting cement. (D) Masonry (building face).



PROJECTED MOUNTING

(E) Letter drilled and tapped. (F) Threaded stud (bronze or aluminum). (G) Oversized hole for stud filled with quick setting cement. (H) Masonry (building face). Can be installed against a wooden space-strip which is removed after cement has hardened or space collars can be supplied to hold letters away from wall.



UPRIGHT ERECTION

(Sans Serif, Massive Block only)—(J) Machine screw through mounting bar to drilled and tapped holes in bottom of letters. (K) Bottom side of letters ground to assure flat bearing on mounting bar. (L) Mounting bar strip (bronze or aluminum). (M) Lag bolt, wood screw or other fastener for mounting bar strip to mounting surface.

FINISHES

SATIN FINISH—A fine grain vertically lined finish in which the metal appears in its natural color. Sprayed with clear lacquer to preserve finish.

POLISHED FINISH—Same natural color as satin finish but letters and figures are polished to a high gloss. Lacquered to protect against tarnishing.

ALUMILITE FINISH—An anodic coating available in clear, black or other colors on aluminum only. Exceptionally corrosion proof.

OXIDIZED FINISH—A dark brown artificial aging process applied to bronze only.

ENAMELED, PAINTED or PLATED FINISHES—Available on specification.

SPECIFYING

"Cast letters to be made by H. W. Knight & Son, Inc., 8 Lane St., Seneca Falls, N. Y.
Letters shall be style .....; ..... inches high; .....inch stroke; and .....inches in depth.
Letters shall be cast of ..... (metal). Faces are to have a .....finish.
Sides are to be filed smooth, with all tool marks removed by fine abrasive grain air blasting.
Fastening of letters and figures to be done by .....method." (See methods of fastening).

ARCHITECTURAL ADVISORY SERVICE

Making metal letters and figures has been Knight's business for over 90 years. For this reason, Knight is well qualified to recommend styles, sizes, materials and methods of fastening letters should you wish it. TRACING ALPHABETS ARE AVAILABLE.

SPECIAL DESIGNS

Knight is equipped to produce special letters and figures for your requirements. Simply send a description, sample or sketch. . . our draftsmen and skilled craftsmen will do the rest.

PRICES—QUOTATIONS

Send today for latest price list on Knight metal letters and figures. Quotation furnished for special designs when description, sample or sketch is supplied.

PRINTED IN U.S.A. FORM 2111A-20M-6-59

H. W. KNIGHT & SON, INC., 8 Lane Street, Seneca Falls, N.Y.



KNIGHTPLATES are custom made signs of tough, non-corrosive, weatherproof sandwich-type plastic in which the lettering is engraved right through the surface into the contrasting colored core for maintenance free signs unequalled for high readability and modern, neat appearance. KNIGHTPLATES are available in FIFTEEN popular color combinations and in letter sizes from ⅛ inch to 2½ inches.

USE KNIGHTPLATES

to identify every door and desk in every type office or building:

1.
To avoid confusion — save a million questions.

2.
To courteously direct and channel traffic.

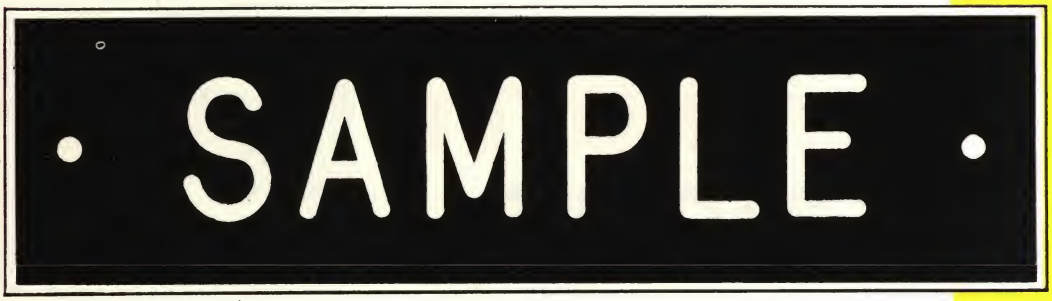
3.
To speed efficient movement among personnel.

4.
As a safety and precautionary measure.

KNIGHTPLATES give you legible permanence, uniformity and orderly appearance not found in any other form of sign. Furthermore, you have a SELECTION OF COLOR SURFACES AND SMART NEW WOOD GRAIN PLASTICS designed to harmonize perfectly with any decoration theme.

KNIGHTPLATES are custom made nameplates or signs deeply engraved in pressure laminated Bakelite type plastic. The lettering is cut right through the tough weatherproof surface to expose the contrasting core. This gives you a beautifully crisp nameplate or sign unequalled for its high readability and permanent attractiveness.

KNIGHTPLATES have a low initial cost but that is only part of their economy. There is no maintenance: Knightplates do not fade nor chip like paint; do not rust like metal; need no replacement like decals; and may be washed with soap and damp cloth.



SOLID COLOR PLASTICS

872 Black (white lettering)
814 Red (white lettering)
886 Cocoa (white lettering)
805 Brown (white lettering)
827 Spruce Green (white lettering)
719 Charcoal (white lettering)
710 Blue (white lettering)
775 Gray (white lettering)
777 Gray (black lettering)
781 White (black lettering)
793 Mist Green (black lettering)
956 Yellow (black lettering)

WOOD GRAIN PLASTICS

618 MAPLE (black lettering)
942 WALNUT (white lettering)
994 MAHOGANY (white lettering)

ORDERING KNIGHTPLATES:

The KNIGHTPLATE above is shown actual width using ¾" high lettering. Lengths will vary with number of characters. Standard KNIGHTPLATES are ⅛" thick, three ply plastic and are furnished with the edges beveled smoothly 1/16" x 45° to produce a handsome contrasting border. Mounting holes are accurately drilled (unless otherwise specified). And sufficient nickel-plated screws are supplied for neat installation on either wood or steel surfaces.

In ordering, simply specify the number and name of color desired, list names you wish plated and quantity of each. Specify the size lettering from those listed below.

PRICES FOR SINGLE LINE KNIGHTPLATES

Letter Size	Plate Width	Plate Length	Price Per Character
¾	1½	As required	15¢
⅞	1¾	As required	16¢
1	2	As required	18¢
1¼	2¼	As required	21¢
1½	2½	As required	24¢
2	3¼	As required	30¢
2½	4	As required	40¢

Count each letter and punctuation mark as one separate character. For example, the name J. T. Jones in ¾" letters would be computed as nine characters x 15¢ or $1.35 total.

These prices are for single line KNIGHTPLATES in which the length is no longer than required to allow proper spacing and margins. The cost of the lettering and material are both included in "Price per Character."

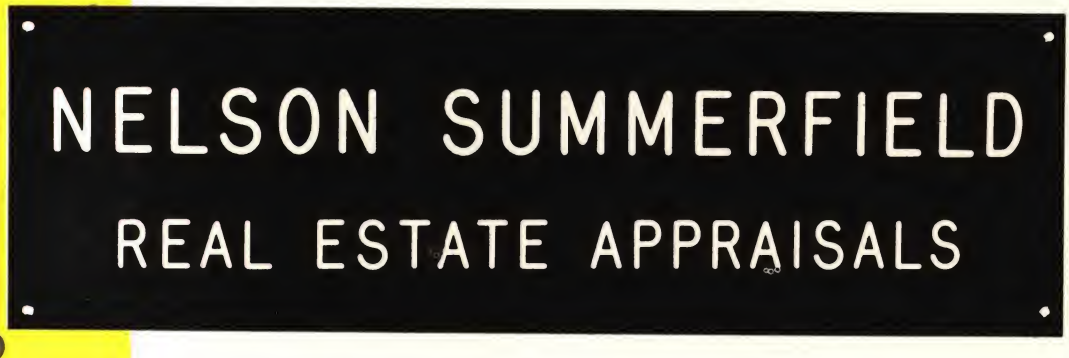
SPECIAL SIZES

KNIGHTPLATES may be furnished in any size required, as for example where more than one line of copy is desired or where single line plates are required to be a specific length regardless of short copy. The cost of these signs is figured at 4¢ per square inch for material plus 10¢ per character ½″ to 1″, 15¢ per character 1¼″ to 2″ and 25¢ per character 2½″ letter size.

KNIGHTPLAQUES FOR RESTROOMS

are offered in all of the fifteen bakelite materials as well as aluminum in size 5″ x 8½″. Prices for plaques as illustrated are $6.20 each in bakelite or $9.60 each in aluminum.

Plaques to your own special design from your drawings can be promptly and economically produced.





3A



3B



4B



4A

KNIGHT PROJECTING SIGNS

are offered in all of the fifteen materials listed. They may be engraved on one or both sides and are furnished complete with solid aluminum wall plates and projecting bars.



PJ-1A



PJ-1B



PJ-2



PJ-3

Projecting signs PJ-1A and PJ-1B are furnished with a ¼ x 1½ x 3 wall plate, a 5/16 x ½″ bar as long as required, "S" hooks and necessary screws.

PJ-2 is furnished with a bar ⅝ x ¾ x length as required with an ⅛″ wide slot milled ⅜″ deep the length of the bar to receive the edge of the sign plate. Mounting to the wall is made by screws which are concealed when the sign is inserted and retained in the slot by two pins.

PJ-3 is furnished with a ¼ x 1½ x 3 wall plate supporting the ⅝ x ¾ bar with slots milled across the top and bottom edges to receive the sign plates which are retained by small pins.

Projecting signs may be priced by figuring the cost of the sign plates as single line Knightplates or as special size plates, whichever is applicable, and adding the cost of the mounting hardware; $2.40 for PJ-1A and PJ-1B, $1.50 for PJ-2 and $4.80 for PJ-3.

SPECIAL LETTER STYLES

All of the prices quoted in this catalog are based on vertical condensed gothic as illustrated on Page 2. Special letter styles as illustrated below are available, however, prices for work in any of these special styles will be furnished promptly on request.

KNIGHTPLATES
SCHOOLBOOK

KNIGHTPLATES
IBERIAN

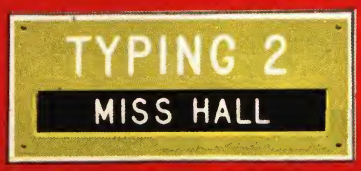
KNIGHTPLATES
NUECES

Knightplates
ARCADIAN

KNIGHTPLATES
EXTRA CONDENSED



A-3" x 4"



B-3" x 8"

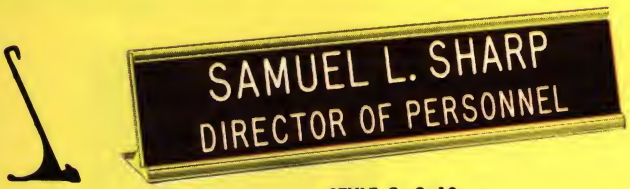
KNIGHTPLATES WITH INSERT

Styles A and B are offered in all of the fifteen plastic materials listed and are furnished complete with a black nameplate insert fitted into a recess behind the opening. They are ideal for installations where the occupants of a room or office might be changed occasionally.

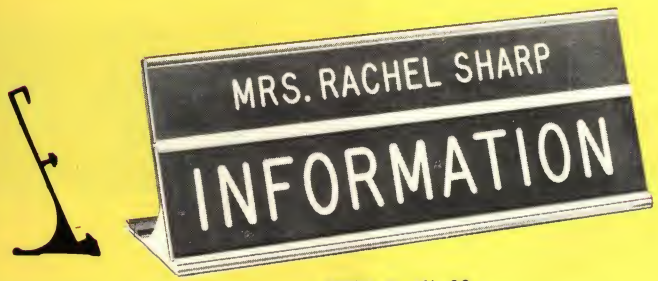
Prices, complete with insert:
Style A, $2.60 plus 10¢ per letter engraved
Style B, 3.40 plus 10¢ per letter engraved
Replacement Inserts, .25 plus 10¢ per letter engraved



STYLE D—1½x8



STYLE C—2x10



STYLE E—1½x10
2x10



STYLE C—2x10

KNIGHT PEDESTAL SIGNS

Knight Pedestal Signs are highly polished aluminum frames, anodized gold or silver color, and designed to hold engraved inserts of one of the fifteen plastic materials.

Prices, complete with inserts:
Style C, $5.20 plus 10¢ per letter for engraving
Style D, 4.10 plus 10¢ per letter for engraving
Style E, 7.60 plus 10¢ per letter for engraving

Price for replacement inserts: 75¢ plus 10¢ per letter for engraving.

These prices are for lettering engraved in our standard letter style illustrated on page 2.
Prices for engraving monograms or company trademarks will be quoted on application. A cut or mat is required for such reproductions.

POPE & BLAKE
Architects

KNIGHTPLATES IN ALUMINUM

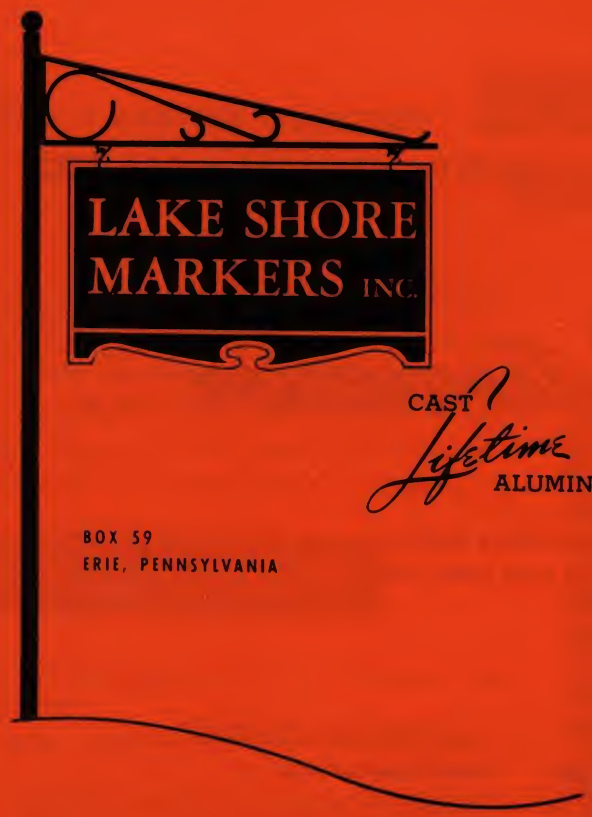
are furnished in ⅛" thick, satin finish, alumilited, aluminum plate in which the deeply engraved lettering is filled with baked enamel in your choice of color. The cost of these signs is figured at 8¢ per square inch for material plus 20¢ per character ½" to 1", 35¢ per character 1¼" to 2" and 50¢ per character 2½" letter size.

·KNIGHT· *Manufacturing Co.*
5975 ARMOUR DRIVE HOUSTON 20, TEXAS

Each order is given prompt individual attention, and most orders are shipped within ten days after receipt at factory. Shipments are made via insured Parcel Post.

Minimum charge for any order $4.00

TERMS: 30 days net to approved credit rated firms. If no credit has been established with us, a deposit of 50% required with order and balance shipped c.o.d.





DESIGNED FOR

ARCHITECTS

Specialist in Integrally Cast **DOUBLE FACE** Signs

LAKE SHORE CAST Lifetime ALUMINUM



PLAQUES • BUILDING LETTERS • SIGNS
CHURCH CROSSES • CADUCEI

Introduction...

51st Anniversary **The Lake Shore Marker Co. was founded by the late Arthur Gill, in connection with the Lake Shore Pattern Works which is observing its 51st anniversary in business.**

COMPLETE SERVICE

An art department with an efficient staff of artists where sketches are made.

A pattern department where paterns are made from the customers' approved sketch.

A foundry where a sand casting is made from the custom made pattern.

A finishing and treating department where the casting is finished and treated so that it will resist weather, and all other hazards encountered during its service.

CONSULTING SERVICE

Lake Shore Markers maintains for architects a consulting service which offers qualified technical advice at no cost. This service will assist in planning letters and signs for buildings, memorials and parkways and will help in formulating ideas for commemorative plaques.

ALUMINUM CASTINGS
Are Economical

Aluminum alloy has proven its qualities as a lifetime metal comparable with bronze. Lake Shore craftsmen are skilled in producing fine aluminum plaques for every occasion in this modern metal which will render years of service without polishing or furbishing in any way.

An important feature of Lake Shore aluminum plaques is the reduced weight to approximately 1/3 the weight of other metals. This is important in shipping costs, production costs, handling and installation.

PROMPT QUOTATIONS

We will gladly submit prompt quotations on your rough sketch or proposal. Your specifications can be followed exactly. If deviations are possible for economy, we will so advise you and submit suggestions for consideration.

Send us rough sketch, or pertinent information, and we will respond promptly with our drawing and quotations. Full cooperation assured.

Nationwide distribution: *PLEASE WRITE TO US FOR YOUR NEAREST DEALERS*

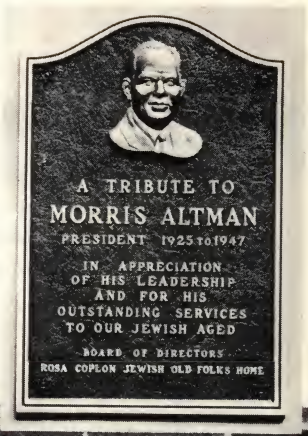
LAKE SHORE MARKERS INC.
BOX 59 • ERIE, PENNSYLVANIA

PLAQUES

SCHOOLS • RELIGIOUS

MEMORIAL

The part of any new construction most scrutinized by the general public is usually the plaque telling "Who's Who" with relation to the building. Lake Shore Markers produces signs and markers of unusual merit and have won wide recognition for superior workmanship by discriminating architects.



17" x 23"

Sample shows our sculptored work





36" x 24"

24" x 18"

Note: We specialize in Plaques with special plates for adding or changing names, time or dates

SPECIFICATIONS

Following are suggested specifications for use in your general plan and construction specifications.

Aluminum Tablet to be as manufactured by Lake Shore Markers, Inc., P. O. Box 59, Erie, Penna., sand cast of corrosion resistant aluminum, no junk remelt, or scrap aluminum. Castings shall be free of pits and blemishes, and all letters shall be sharp and of clear character. Letters shall be raised in proper height above background to give good three-dimension appearance.

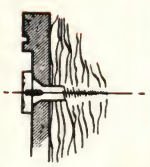
Borders and faces of raised letters are to be of satin finish. Background is to be leatherette design, and gray aluminum finish. (If colored background is desired, same shall be of weatherproof vinsynite, vinyl color and finish.) At least four coats of weatherproof vinyl permanent clear coatings shall be pressure sprayed on complete plaque to form a weather tight seal against atmospheric contamination. Tablet is to be..... inches wide by.....inches high, with .....border design and approximately.....letters. Mounting attachments to be furnished for mounting on.....wall by others. Prior to casting, plaque manufacturer to furnish paper masque proof copy, or actual rubbing of complete layout.

Bronze Tablets—Same as above, except bronze, where aluminum is shown, can also be furnished by Lake Shore Markers, Inc.

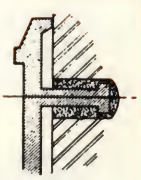
MOUNTINGS



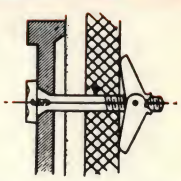
Lead, brass expansion shields with flush head machine screw and rosette fastening. This is the most popular type of mounting.



Mounting on wood background using wood screw and ornamental rosettes through drilled holes in plaque. If mounting holes are critical, specify exact dimensions for centers, or we will ship undrilled.



Concealed type mounting with integrally cast mounting supports, for mounting in drilled holes in buildings. Set with Porrok expanding cement made by Hallemite Corp., Cleveland, Ohio.



For hollow tile, cement block, plywood, or other background where expansion screws or wood screws are not suitable.

LAKE SHORE MARKERS INC.
BOX 59 • ERIE, PENNSYLVANIA

LETTERS

CAST • CUTOUTS • FABRICATED

The trend is increasingly toward free-standing letters to be set free from building from ½" to 4", depending upon specific requirements. A wide range of stock patterns and excellent delivery service is available. Illustrations show typical examples of off-set letters in various designs and requirements. All Lake Shore building letters are finished in at least four-coats of vinyl clear coating to keep them new and attractive for years without attention. Lake Shore building letters are furnished in fabricated style where required, in stainless 18-8 steel, sheet metal, sheet aluminum, porcelain enamel. Superlative quality construction and distinctive design assured.

CAST ALUMINUM

Cast aluminum letters are to be as manufactured by Lake Shore Markers, Inc., P. O. Box 59, Erie, Penna., or equal. Letters shall be of Style....., Number....., Height....., Stroke....., Average width....., Depth (return).....

Letters shall be sand cast of corrosion resistant aluminum suitable for approved finish. Letters shall be of rigid construction, and free from pits and blemishes. Letter faces are to be ground smooth and buffed to satin finish.

Edges are to be filed and ground to uniform attractive appearance.

Letters are to be installed on.....surface, requiring..... .....method of fastening.

Our MOST POPULAR FIVE

We have several other fonts to choose from

BROADWAY NO. 118



FUTURA NO. 112



GOTHIC NO. 114



KABEL NO. 113



RIBBON NO. 111



HEIGHT	AVE. WIDTH	WIDTH OF STROKE	DEPTH OR THICKNESS
3"	2"	13/16" & 5/16"	5/8"
6"	5"	1 5/8" & 5/8"	3/4"
8"	7"	2 1/4" & 13/16"	7/8"
10"	8"	2 3/4" & 1"	1 1/8"
12"	10"	3 1/4" & 1 1/4"	1 1/4"
14"	12"	4 1/2" & 2 1/4"	2"
18"	15"	5" & 2"	2 1/4"
2"	1 5/8"	7/16"	1/2"
3"	2 7/16"	5/8"	5/8"
4"	3 1/4"	13/16"	3/4"
5"	4 1/8"	1 1/16"	7/8"
6"	4 7/8"	1 1/4"	1"
8"	6 1/2"	1 11/16"	1 1/4"
10"	8 1/4"	2 1/8"	1 1/2"
12"	9 3/4"	2 1/2"	1 3/4"
15"	12"	3 3/16"	2 1/4"
18"	14 3/4"	3 13/16	2 1/2"
20"	16 1/2"	4 1/4"	3"
24"	19 1/2"	5 1/8"	3"
6"	4"	1 1/8"	3/4"
9"	6"	1 5/8"	1"
12"	8"	2 1/4"	1 1/8"
15"	10"	2 3/4"	1 3/8"
18"	12"	3 1/4"	1 3/8"
24"	16"	4 3/8"	1 3/4"
2"	1 1/2"	1/4"	1/4"
3"	2"	1/2"	1/4"
4"	2 3/4"	11/16"	1/4"
5"	3 1/2"	13/16"	1/2"
6"	4"	7/8"	1/2"
8"	5"	1 1/4"	5/8"
10"	7"	1 9/16"	11/16"
12"	8"	1 11/16"	3/4"
15"	10"	2"	7/8"
18"	12"	2 1/4"	1"
20"	13"	2 9/16"	1 1/8"
2"	1 1/2"	1/4"	3/4"
3"	2"	3/8"	1"
4"	2 3/4"	3/8"	1 1/8"
5"	3 1/2"	7/16"	1 3/8"
6"	4"	1/2"	2"
8"	5"	1/2"	2"
10"	7"	1/2"	2"
12"	8"	1/2"	2"
15"	10"	7/8"	3"
16"	10"	1/2"	2"
18"	12"	3/4"	3"
24"	18"	3/4"	3"
36"	26"	3/4"	3"

LAKE SHORE MARKERS INC.
BOX 59 • ERIE, PENNSYLVANIA

SPECIFICATIONS

FABRICATED STAINLESS STEEL

Fabricated stainless steel letters to be as manufactured by Lake Shore Markers, Inc., P. O. Box 59, Erie, Pa., or equal. Letters shall be of Style . . . . . , Number . . . . . , Height . . . . . , Stroke . . . . . , Average width . . . . . , Depth (return) . . . . . .

Letters shall be fabricated from 20 gauge 18-8 alloy type 302 stainless steel #4 finish. (If letters exceed 12" in height, 18 gauge 18-8 stainless steel is suggested.)

Letters shall have true edges and true flat faces, all surfaces being satin polished.

Letters are to be installed on . . . . . surface, requiring . . . . . method of fastening. Work to be completed in an expert manner.

FABRICATED ALUMINUM

Fabricated aluminum letters to be as manufactured by Lake Shore Markers, Inc., P. O. Box 59, Erie, Pa., or equal. Letters shall be of Style . . . . . , Number . . . . . , Height . . . . . , Stroke . . . . . , Average width . . . . . , Depth (return) . . . . . .

Letters are to be fabricated from gauges of material best suited to the item to give best workmanship.

FABRICATED SHEET METAL

Same as for stainless steel except of Armco galvanized 20 gauge stock.

FABRICATED PORCELAIN ENAMEL

Same as for stainless steel except that letters shall be fabricated from enameling steel of sufficient gauge to remain rigid and porcelainized inside and out. Letters shall be free of warp and buckle.



CAST LETTERS

CUSTOM DESIGNED LETTERS

Your sketch and descriptive specifications will be used to design letters best suited for your requirements. Regardless of what type, size, depth or other critical requirements are made, Lake Shore Markers designers are equipped to handle your job from original design to final production. Write Lake Shore Markers, Inc., P. O. Box 59, Erie, Penna.



CUT-OUT LETTERS

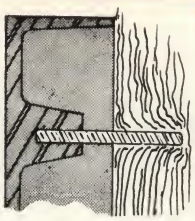


FABRICATED or CAST LETTERS

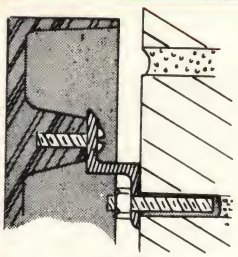
MOUNTINGS



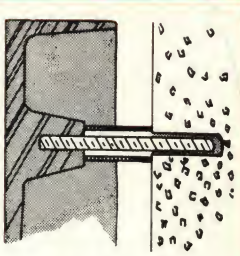
CHANNEL MOUNTING



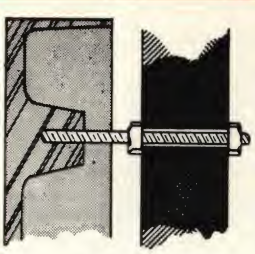
FLUSH MOUNTING TO MASONRY



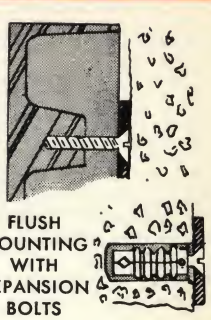
Z-OFFSET MOUNTING



SLEEVE OFF-SET MOUNTING



HOLLOW BACKGROUND TOGGLE BOLT MOUNTING



FLUSH MOUNTING WITH EXPANSION BOLTS

LAKE SHORE MARKERS INC.
BOX 59 • ERIE, PENNSYLVANIA

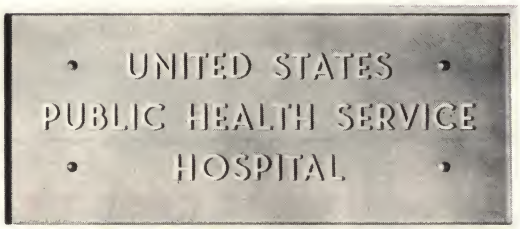
LAKE SHORE CAST Lifetime ALUMINUM

SIGNS

Lake Shore Lifetime Aluminum Signs are not expensive they just look that way! A solution for buildings located in remote spots off the highway or normally traveled roads.



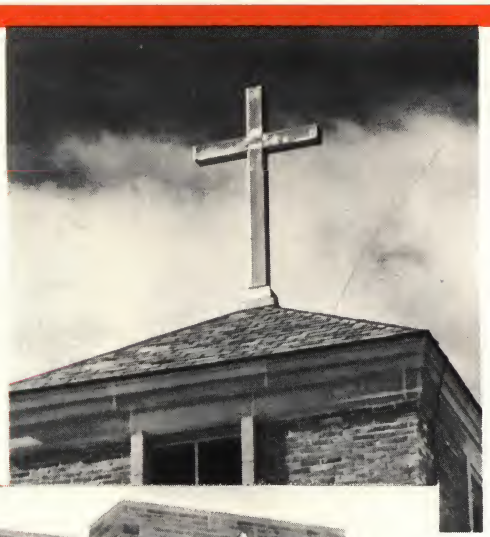




SPECIFICATIONS

Following are suggested specifications: Yard, Directional and Identification signs shall be sand cast of corrosion resistant Aluminum ingot in a ductile alloy to withstand shock and wind pressure. Signs shall be designed to eliminate strains and warping in casting. Casting shall be free from pits and blemishes. All letters shall be sharp and hand tooled where necessary. Border and letter design are to be raised at least $\frac{1}{8}$" above background; letters and borders shall be brought to a common plane unless otherwise shown in drawing. Background of sign shall be at least $\frac{3}{16}$" web. Signs shall be primed with one coat of Vinsynite Vinyl Primer. Entire sign shall be given at least four coats of vinyl permanent clear coating. Signs shall be as manufactured by Lake Shore Markers, Inc., P. O. Box 59, Erie, Penna., or equal. Final colors shall be as follows. . . . . background. . . . . letters.

CROSSES



One of the most challenging assignments in architectural design is the church or the religious building. Churches always have been considered the ultimate expression of the builder's art for the period during which they were constructed. Consequently, religious buildings have been a prime source of inspiration to succeeding generations of architects.



Lake Shore Markers will cast Aluminum or fabricate Aluminum, Stainless Steel, or Porcelain Crosses to your specifications.

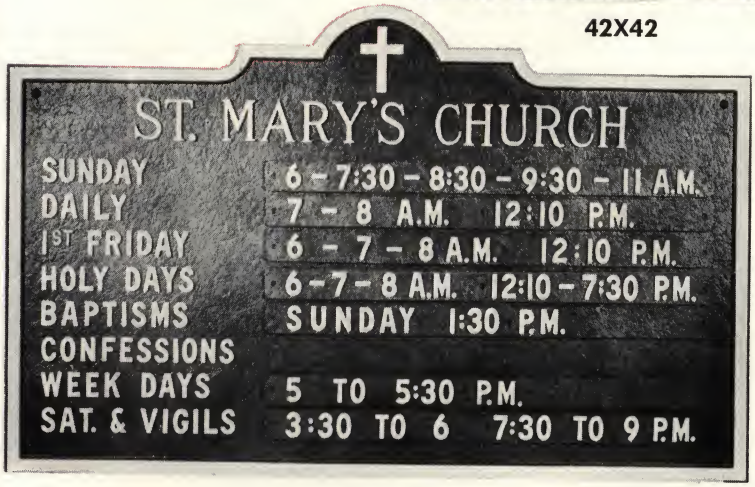
LAKE SHORE MARKERS INC.
BOX 59 • ERIE, PENNSYLVANIA

LAKE SHORE CAST Lifetime ALUMINUM

CHURCH SIGNS



42X42



48X29







CADUCEI

Lake Shore Markers will cast Aluminum or fabricate Caducei to your specifications.

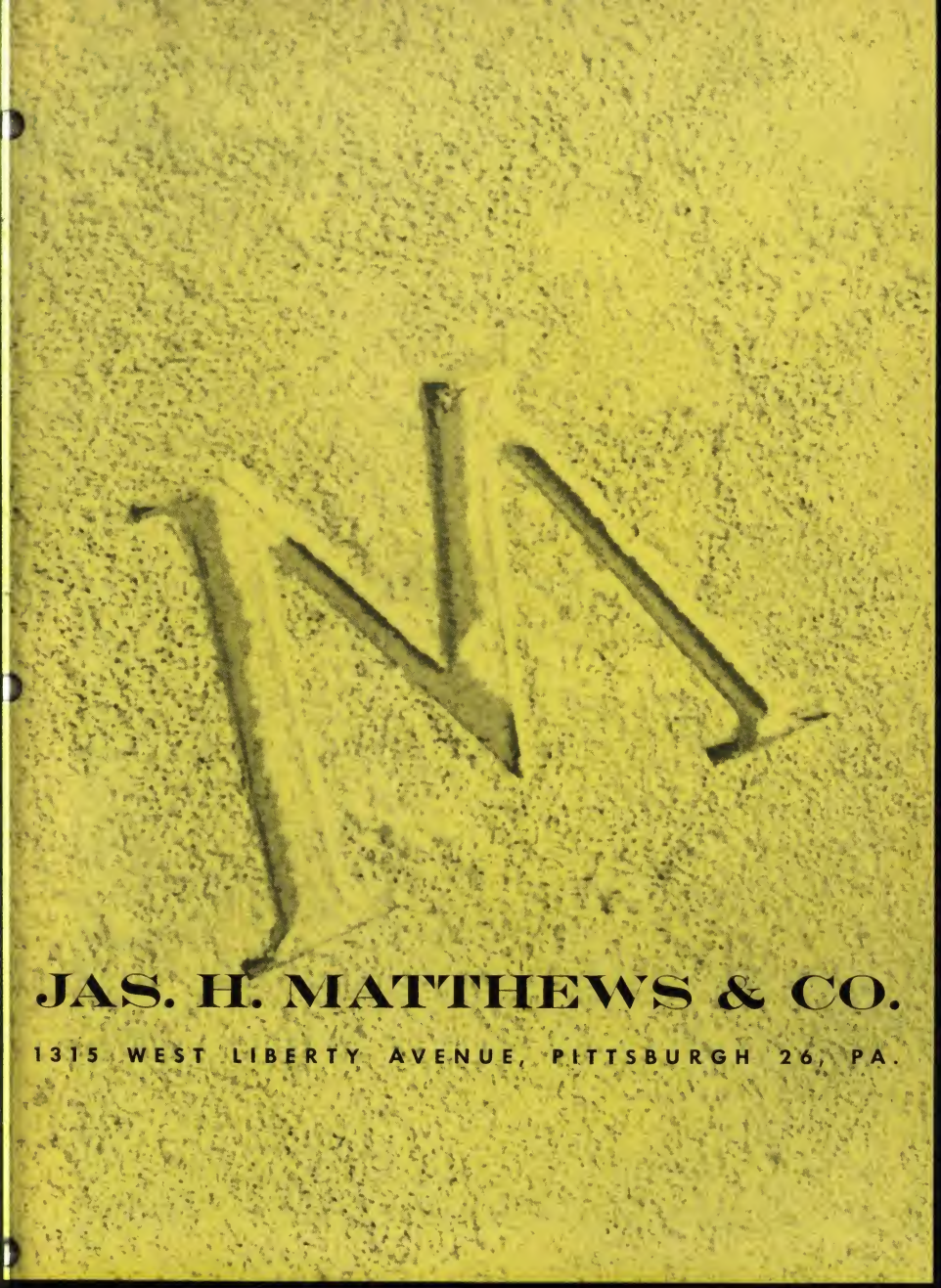




LAKE SHORE MARKERS INC.
BOX 59 • ERIE, PENNSYLVANIA



LAKE SHORE MARKERS INC. ERIE, PA.



JAS. H. MATTHEWS & CO.

1315 WEST LIBERTY AVENUE, PITTSBURGH 26, PA.





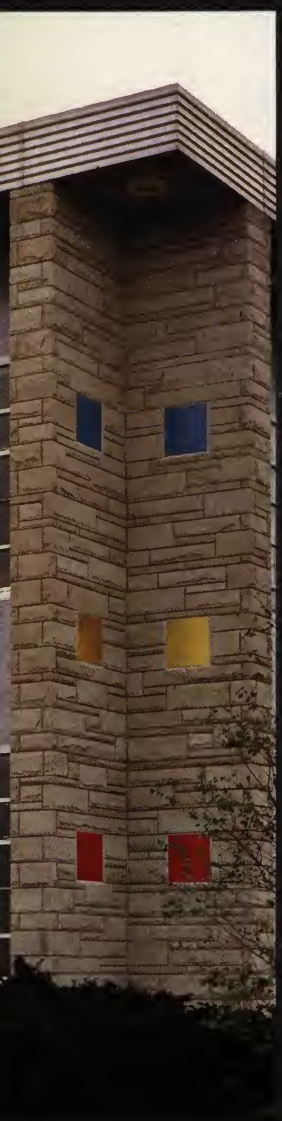
COLOR IN METAL

- aluminum tablets
- bas relief plaques
- bronze tablets
- emblems
- entrance signs
- metal letters
- outline sculpture

CONTRACTOR: MELLON-STUART, INC.
PITTSBURGH, PA.

OWNER: HAGAN CHEMICALS & CONTROL, INC.
PITTSBURGH, PA.







IDENTIFICATION
in color

An excellent example of the utilization of color in identification when the architect and the manufacturer work together. From the highway entrance sign to the architectural design, "company colors" have been effectively used with imagination. Here are illustrations where the color and identification have been employed as part of the architectural design . . . not an afterthought. The material consists of mostly gold anodized aluminum sheet, aluminum extrusions and cast aluminum with baked enamel finish.

On that next school building, you can have that rich looking identification when you specify economical standard metal letters.

HERE ARE SOME OF THE LETTER STYLES you can choose. Illustrated below, left to right, the Block Style which is cast aluminum with satin finish. The Broadway Style which is fabricated vitreous steel with porcelain enamel. The Ribbon Style which is cast aluminum with Brite Aluminite. And, the Kabel Style which is fabricated stainless steel using a porcelain facing and stainless steel sides.



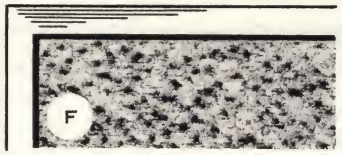


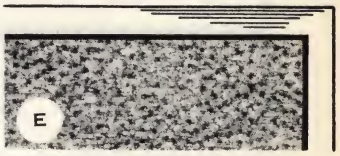


TABLET SPECIFICATIONS

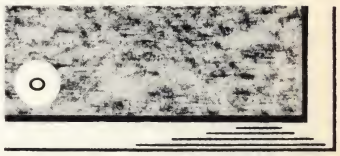
Furnish cast bronze tablet;_____border design;_____horizontally by_____ vertically; using_____letter style; with _____for mounting; finished in_____; bronze to consist of 86% copper, minimum, and 2.5% lead, maximum.

Note: In specifying cast aluminum tablets, refer to aluminum ingot #214 for tablets having an alumilite finish. All others to be #43 aluminum ingot.





All Matthews plaques may be had with a choice of three mat backgrounds. In your specifications, please indicate your preference of either the "F," "E," or "O" mat backgrounds as illustrated.



LETTER STYLES

All letters are available Flat Face *except* Roman Classic Oval Face. All letter styles illustrated below are available in the following size except where specifically indicated.

Size Availabilities:
¼", 5/16", ⅜", ½", ⅝", ¾", ⅞", 1", 1¼", and 1½"

ABCDEFGHIJKLMNOPQRS
TUVWXYZ& 1234567890

EXTENDED GOTHIC BLOCK

ABCDEFGHIJKLMNOPQRS
TUVWXYZ& 1234567890

CONDENSED GOTHIC BLOCK

ABCDEFGHIJKLMNOPQRS
TUVWXYZ& 1234567890

RIBBON (Not available in ¼", 5/16", ⅞" or 1¼" sizes.)

ABCDEFGHIJKLMNOPQRS
TUVWXYZ& 1234567890

EXTENDED ROMAN CLASSIC

ABCDEFGHIJKLMNOPQRS
TUVWXYZ& 1234567890

CONDENSED ROMAN CLASSIC (Not available in ¼" or 5/16" sizes.)

ABCDEFGHIJKLMNOPQRS
TUVWXYZ& 1234567890

ROMAN CLASSIC—OVAL FACE

ABCDEFGHIJKLMNOPQRS
TUVWXYZ& 1234567890

MODERNE (Not available in ¼", 5/16", ⅞" or 1¼" sizes.)

The letter styles illustrated above are stock items and are available for all bronze and aluminum tablets. Special styles may be quoted upon request.

ARCHITECTURALLY STYLED LETTERS

ABCCDDEF

GOTHIC FUTURA

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
2"	7/16"	1/2"	12"	2"	2"
3"	5/8"	1/2"	14"	2 3/8"	2"
4"	3/4"	1/2"	16"	2 1/2"	2 1/8"
5"	1"	3/4"	18"	3 1/2"	2 1/2"
6"	1 1/8"	1"	24"	4"	3"
8"	1 3/4"	1 1/4"	30"	5"	4"
10"	2"	1 1/2"			

ABCDEFGHIJKL

HUXLEY

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
2"	3/16"	7/16"	8"	5/16"	1"
3"	1/4"	3/4"	10"	1/2"	1"
4"	1/4"	3/4"	12"	1/2"	1 1/2"
5"	1/4"	3/4"	15"	1/2"	2"
6"	3/8"	3/4"			

ABCDEFGH

KABEL

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
2"	1/4"	1/4"	12"	1 3/4"	3/4"
3"	1/2"	3/8"	14"	2"	7/8"
4"	3/4"	3/8"	16"	2 1/8"	1"
5"	7/8"	1/2"	18"	2 1/2"	1 1/8"
6"	1"	1/2"	20"	2 3/4"	1 1/2"
8"	1 1/4"	5/8"	24"	3 1/2"	2"
10"	1 1/2"	3/4"			

ABCDEFGH

DEEP RIBBON

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
3"	5/16"	1"	8"	3/4"	1 7/8"
4"	3/8"	1 1/8"	10"	1/2"	2 1/8"
5"	7/16"	1 3/8"	12"	5/8"	2 3/16"
6"	7/16"	1 1/2"	15"	11/16"	2 3/4"
6"	3/4"	1 7/8"	18"	3/4"	3"
8"	1/2"	1 3/4"	24"	3/4"	3"

ABCDEFGH

CLASSIC ROMAN

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
3"	5/8"-3/8"	3/8"	10"	1 3/4"- 7/8"	1"
4"	3/4"-7/16"	3/8"	12"	2" -1"	1 1/4"
5"	7/8"-1/2"	1/2"	15"	2 1/2"-1 1/4"	1 3/8"
6"	1 1/8"-9/16"	5/8"	18"	3" -1 1/2"	1 1/2"
8"	1 3/8"-3/4"	1"			

ABCDEFGH

BROADWAY

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
3"	1/2"-1/4"	3/8"	10"	3" - 3/4"	3/4"
4"	1" -1/2"	1/2"	12"	3 1/4"-1"	3/4"
5"	1" -1/2"	1/2"	16"	3 3/8"-1 1/2"	1"
6"	1 3/4"-5/8"	5/8"	18"	3 1/2"-1 3/4"	1"
8"	2 1/8"-3/4"	5/8"	20"	3 3/4"-1 3/4"	1 1/2"

ABCDEFGHIJ

MODERN GOTHIC

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
4"	7/16"	3/8"	12"	1 3/8"	1 1/8"
6"	11/16"	5/8"	14"	1 5/8"	1 1/4"
8"	7/8"	3/4"	15"	1 3/4"	1 3/8"
9"	1"	7/8"	18"	2"	1 1/2"
10"	1 1/8"	1"	24"	3"	1 3/4"

ABCDEFGHI

ELECTRIC BLOCK

Height	Width of Stroke	Depth	Height	Width of Stroke	Depth
6"	1 3/4"- 3/4"	3/4"	15"	4" -1 3/4"	1 1/2"
8"	2 1/4"-1"	7/8"	16"	4 1/2"-2"	1 5/8"
10"	3" -1 1/4"	1"	18"	5" -2 1/4"	1 3/4"
12"	3 1/2"-1 1/2"	1 1/4"			

SPECIAL EMBLEMS AVAILABLE

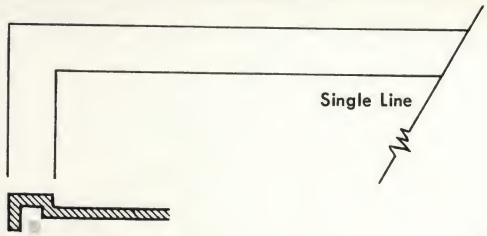


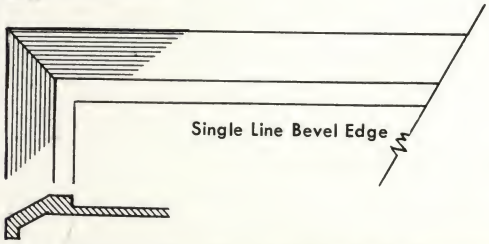






BORDER DESIGNS





FOR ECONOMY these border designs are stock patterns in the following sizes:

16" x 20"

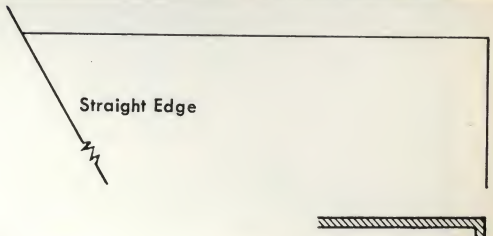
18" x 24"

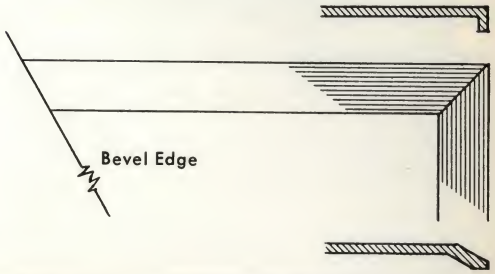
18" x 28"

20" x 30"

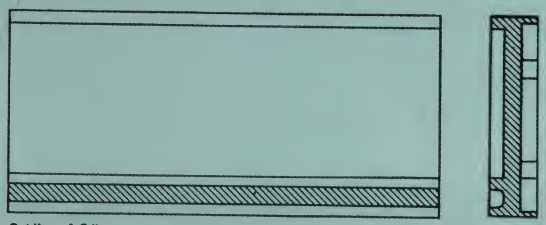
24" x 30"

Border dimensional specifications must be per stock patterns. Details are supplied upon request.

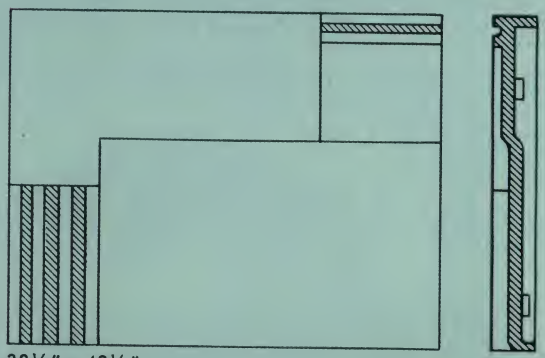




SPECIAL DESIGNS

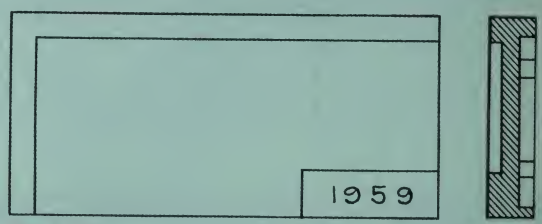


24" x 18"

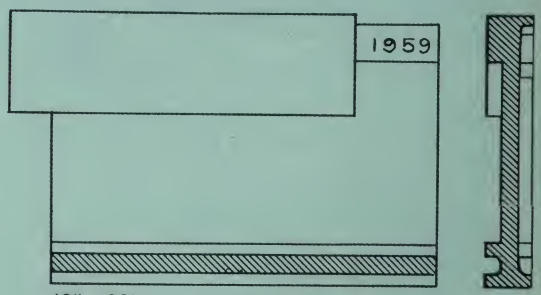


38¼" x 43½"

These designs are available in listed sizes only and are standard stock patterns.



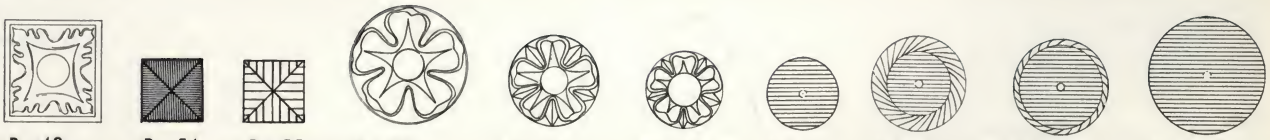
30" x 20" Numerals incised



48" x 30" Numerals incised

ROSETTES

Illustrated One-Half Size



R - 48 R - 54 R - 55 R - 16 R - 32 R - 74 R - 2 R - 3 R - 4 R - 5

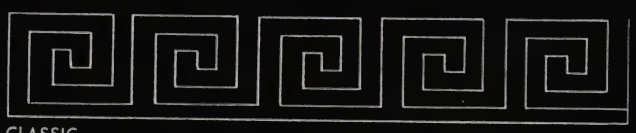
SPECIAL BORDERS



BOLD

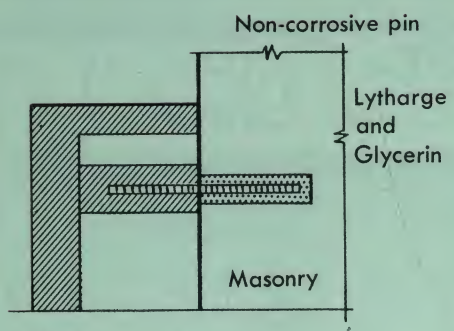


ADAM

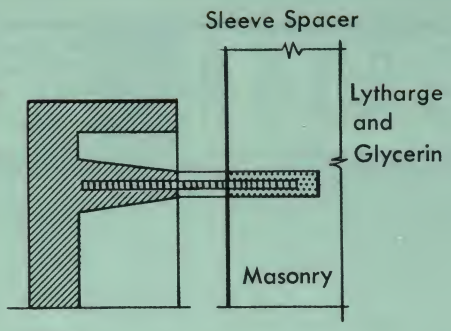


CLASSIC

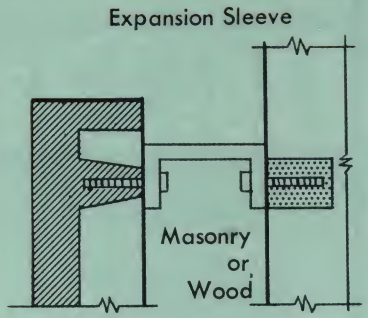
MOUNTING TECHNIQUES FOR METAL LETTERS



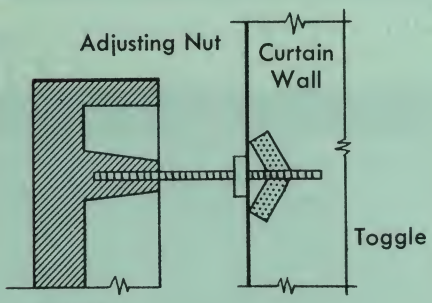
FM-1
Flush Mounted



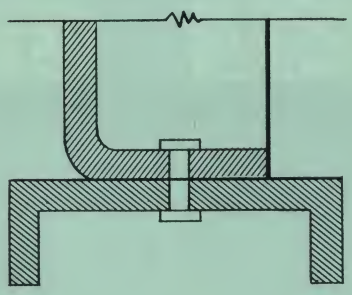
PM-2
Projected Mounting



BP-3
Bracket Projected



PM-2A



CB-4
Channel Base

Note: Contractor to provide mounting hardware to secure channel to built-up roof.

LETTER SPACING

Scale drawings, submitted for architectural approval prior to manufacturing, will be artistically spaced insuring proper legibility. For approximating space required, use a factor of ⅓ average width of letter, times total number of letters. Use 1⅓ letter width for space between words.

The following letters must extend above the top line. AMN

The following letters must extend above top line and below base line. CGOQS

The following letters must extend below the base line. JVW

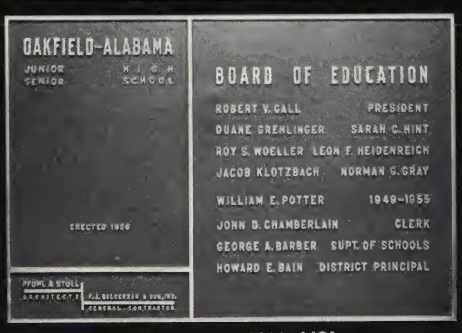
SPECIFICATIONS FOR LETTERS

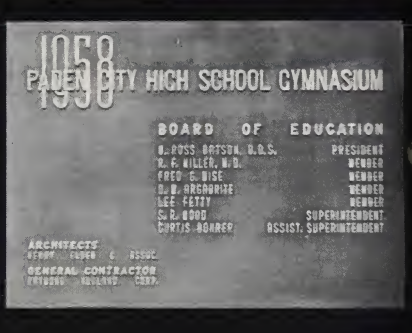
Cast Bronze Letters; minimum 86.0% copper with maximum 2.5% Lead; standard_____style;_____high, _____stroke and_____depth;_____finish; mounting hardware to be_____.

Scale prints to be submitted for architectural approval prior to manufacturing. Full size erection emplates with letter

Note: Cast aluminum letters to be of aluminum ingot #214 if alumited or anodized finish is desired; aluminum ingot #43 used when baked enamel finish is required.







SPECIFY BRONZE WITH MATTHEWS PROTECTIVE FINISH . . . ALWAYS!





ARCHITECTURALLY BALANCED

Here the use of an inexpensive cast aluminum emblem adds a personal and rich touch to the exterior and interior of the building. Combined with metal letters for identification, it becomes a simple yet effective memorial plaque. The illustrated cast aluminum emblem is applied to marble with strong adhesive, thus eliminating drilling costs.

There is a Matthews representative near you who can assist you in the selection of "that entrance identification that must be just a little different."

ARCHITECT: FARGOTSTEIN & CHETLIN

CONTRACTOR: MIKE LEEBOV CO.

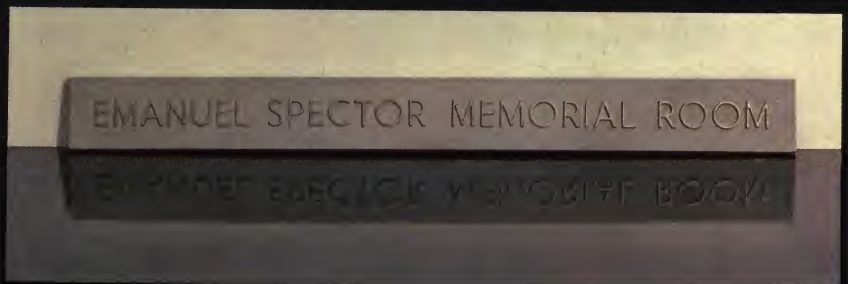
OWNER: UNITED JEWISH FEDERATION OF PITTSBURGH, PA.















CONTRACTOR: CRUMP, INC.
PITTSBURGH, PA
OWNER: HOMESTEAD HOSPITAL
PITTSBURGH, PA





IDENTIFICATION *in metal*

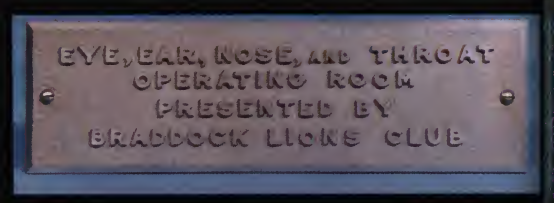
In this age of metals, the application of cast aluminum or cast bronze presents the most ideal means of identification. For example, the Homestead Hospital shows the blending of a cast aluminum emblem and stainless steel overhead letters. Identification in perfect harmony with the architecture. The effective use of emblems is illustrated in the 5'9" caduceus which serves as a decorative identification plaque. Overhead letters illustrates the functional use of aluminum letters when applied to a marquee. These letters may also be attached to the wall surface and are available in porcelain enamel and the economical baked enamel finish.

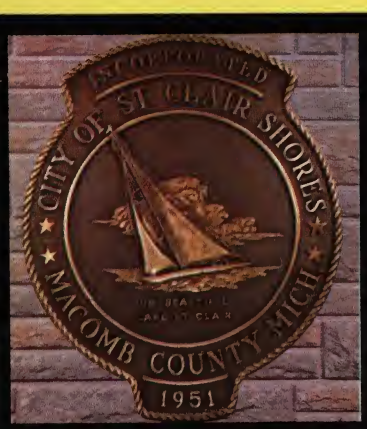
BRONZE AND ALUMINUM PLAQUES . . . TOO!

In perfect contrast, individual identification bronze and aluminum plaques are also available. Whether it be an interior or exterior installation, Matthews can serve you with standard or special patterns. All bronze plaques receive the Matthews exclusive protective finish insuring carefree maintenance.

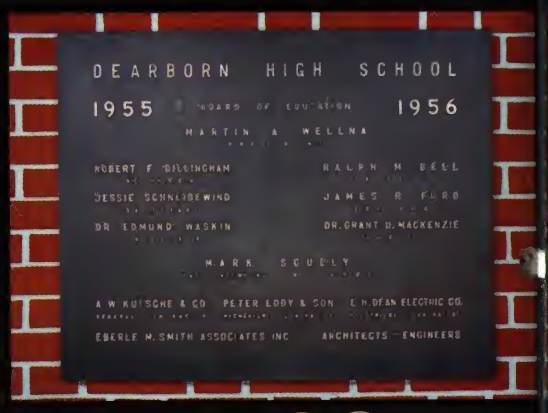
WRITE FOR FULL INFORMATION TODAY











PRINTED IN U.S.A.
B-470

JAS. H MATTHEWS & CO.

1315 WEST LIBERTY AVENUE, PITTSBURGH 26, PA.

Catalog No. 60-10

A.I.A. File No. 35-H-9

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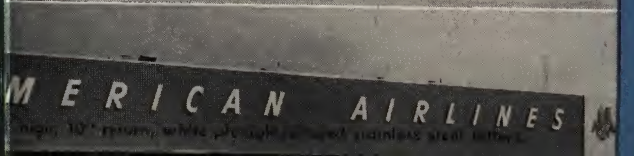
high, 10" return, fabricated aluminum, gold anodized.



" and 24" high stainless steel letters.



orcelain enamel letters.



METAL LETTERS

"Fine architecture deserves distinctive identification"

- **STAINLESS STEEL**
- **CAST ALUMINUM alumilited**
- **WELDED ALUMINUM alumilited (anodized any color)**
- **BRONZE**
- **PORCELAIN**
- **BAKED ENAMEL**
- **PLEXIGLASS**

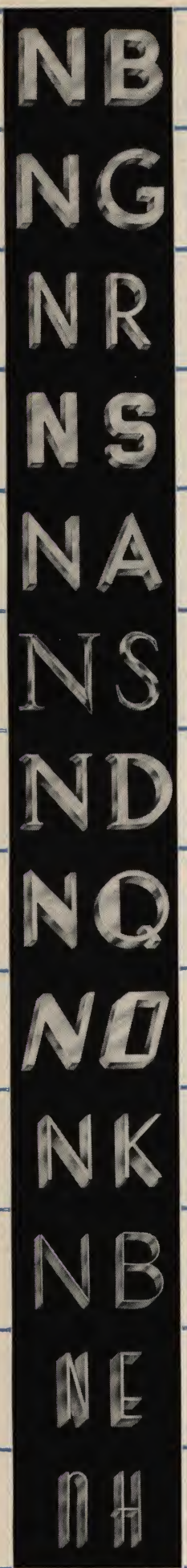
DESIGN ASSISTANCE • Nelco especially invites inquiries from architects and designers. Send us your design or logotype and space available. We will be happy to work with you on any special sign problem.

NELCO

F. T. NELSON, President

METALCRAFT, INC.
3036 WEST CHICAGO AVE.
CHICAGO 22, ILLINOIS
Phone: SAcramento 2-4444

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	Nos.
ABCDEFGHIJKLMNOPQR STUVWXYZ& **LEGANT FUTURA**	200
ABCCDDEFGGHIJKLMNQQP RSTUVWXYZ& **GOTHIC FUTURA**	220
ABCDEFGHIJKLMNOPQRS TUVWXYZ& **CONDENSED GOTHIC**	215
ABCDEFGHIJKLMNOPQRS TUVWXYZ& **BLOCK GOTHIC**	190
ABCDEFGHIJKLMNOPQRS TUVWXYZ & **KABEL**	225
ABCDEFGHIJKLMNOPQR STUVWXYZ& **PRISMATIC ROMAN**	260
ABCDEFGHIJKLMNOPQRS TUVWXYZ& **FLAT FACE ROMAN**	235
ABCDEFGHIJKLMNOPQRS STUVWXYZ & **BROADWAY**	230
*ABCDEFGHIJKLMNOPQR STUVWXYZ& **NELCO GOTHIC**	195
ABCDEFGHIJKLMNOPQRSTU VWXYZ&CGOQ **DEEP RIBBON**	245
ABCDEFGHIJKLMNOPQRSTU VWXYZ&CGOQ **STANDARD RIBBON**	240
ABCDEFGHIJKLMNOPQRSTUVWXYZ& **CONDENSED RIBBON**	301
ABCDEFGHIJKLMNOPQRSTUVWXYZ& **HUXLEY**	250

LORELEI

Fabricated Plexiglass faced letters with 1" or more return fitted to stainless steel, or baked enamel body at least 3" or 4" in depth. Plexiglass can be white or colored. Crisp, clean distinctive letters both day and night. Low maintenance since lighting elements are out of the weather.

NELCO CAST SIZES AND STYLES— DESIGNED FOR YOUR EVERY NEED

STYLE	No.	STROKE DEPTH	LETTER HEIGHT—inches																		
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	24	30
LEGANT FUTURA	200	STROKE		5/8		1		1 1/2		1 15/16		2 5/16		2 3/4		3 3/16		3 5/8				
		DEPTH		5/8		1		1 1/2		1 3/4		1 7/8		2		2 1/8		2 1/4				
GOTHIC FUTURA	220	STROKE	7/16	5/8	3/4	1	1 1/8		1 3/4		2		2		2 3/8		2 1/2		3 1/2	3 1/2	4	5
		DEPTH	1/2	1/2	1/2	3/4	1		1 1/4		1 1/2		2		2		2 1/8		2 1/2	2 1/2	3	4
CONDENSED GOTHIC	215	STROKE			7/16		11/16		7/8	1	1 1/8		1 3/8		1 5/8	1 3/4			2		3	
		DEPTH			3/8		5/8		3/4	7/8	1		1 1/8		1 1/4	1 3/8			1 1/2		1 3/4	
BLOCK GOTHIC	190	STROKE					1 1/8		1 1/4	1 5/8	1 3/4		2 1/4			2 3/4			3 1/4		4 3/4	
		DEPTH					3/4		7/8	1	1		1 1/4			1 3/8			1 3/8		1 3/4	
KABEL	225	STROKE	1/4	1/2	3/4	7/8	1		1 1/4		1 1/2		1 3/4		2		2 1/8		2 1/2	2 3/4	3 1/2	
		DEPTH	1/4	3/8	3/8	1/2	1/2		5/8		3/4		3/4		7/8		1		1 1/8	1 1/2	2	
PRISMATIC ROMAN	260	STROKE		1/2 1/4	5/8 3/8	7/8 1/2	7/8 1/2		1 1/8 5/8		1 3/8 7/8		1 1/2 3/4				2 1/4 1		2 5/8 1 1/4	2 3/4 1 1/2	2 7/8 1 1/8	3 3/8 2
		DEPTH		3/8	1/2	5/8	5/8		3/4		3/4		7/8				1		1	1 1/8	1 1/8	1 1/2
FLAT FACE ROMAN	235	STROKE		5/8 3/8	3/4 7/16	7/8 1/2	1 1/8 9/16		1 3/8 3/4		1 3/4 7/8		2 1			2 1/2 1 1/4			3 1 1/2			
		DEPTH		3/8	3/8	1/2	5/8		1		1		1 1/4			1 3/8			1 1/2			
BROADWAY	230	STROKE		1/2 1/4	1 1/2	1 1/2	1 3/4 5/8		2 1/8 3/4		3 3/4		3 1/4 1				3 3/8 1 1/2		3 1/2 1 3/4	3 3/4 1 3/4		
		DEPTH		3/8	1/2	1/2	5/8		5/8		3/4		3/4				1		1	1 1/2		
NELCO GOTHIC	195	STROKE					1 3/4 3/4		2 1/4 1		3 1 1/4		3 1/2 1 1/2			4 1 3/4	4 1/2 2		5 2 1/4			
		DEPTH					3/4		7/8		1		1 1/4			1 1/2	1 5/8		1 3/4			
DEEP RIBBON	245	STROKE	1/4	5/16	3/8	7/16	7/16		1/2		1/2	3/4	5/8			11/16			3/4		3/4	
		DEPTH	3/4	1	1 1/8	1 3/8	1 1/2		1 3/4		2 1/8	1 3/4	2 5/16			2 3/4			3		3	
STANDARD RIBBON	240	STROKE	3/16	1/4	1/4	1/4	5/16		3/8		3/8		3/8		1/2		1/2					
		DEPTH	1/2	9/16	3/4	3/4	7/8		1		1		1 1/2		2		2 1/4					
CONDENSED RIBBON	301	STROKE			1/4		3/8		1/2		5/8		3/4		7/8		1					
		DEPTH			3/4		1 1/8		1 1/2		1 1/8		2 1/4		2 5/8		2 3/4					
HUXLEY	250	STROKE	3/16	1/4	1/4	1/4	3/8		7/16		1/2		1/2			1/2						
		DEPTH	7/16	3/4	3/4	3/4	3/4		1		1		1 1/2			2						

MATERIAL DATA All fabricated letters are bridged and reinforced wherever necessary to insure sound construction. Provision for mounting is incorporated.
* Considerable savings on all CAST letters can be effected by fitting requirements to stock styles and sizes shown in this catalog.

STAINLESS STEEL (Fabricated) Letters are fabricated of #20 gauge, AISI type 302 stainless steel (18-8 alloy), with a #2B or #4 finish. #18 gauge is used for letters with a stroke of 3½" or more. All joints are continuously soldered. No joints are used across face of letter. All letters guaranteed to be free of wave or warp. Grain of the metal runs in same direction on all letters (either vertical or horizontal).

CAST ALUMINUM* All letters are cast from #214 and #400 aluminum. Continuous-belt grinding insures flat, clean surfaces. Sides are satin finish. Face may be satin finish or polished to bright, mirror-like finish and ALUMILITED†.
† Patented by Aluminum Co. of America.

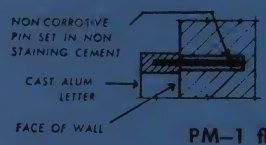
CAST BRONZE* Letters are cast of fine bronze alloy and cleaned by continuous-belt method. Satin finish may be lacquered or oxidized.

PORCELAIN ENAMEL (Fabricated) Letters are fabricated from #16 gauge vitreous enameling steel. All joints are welded with a continuous weld. Letters are guaranteed to be straight and rigid, free from blemishes or scratches.

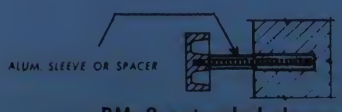
BAKED ENAMEL Cast* or (Fabricated) Fabricated letters are made of #20 gauge terne plate (steel body with heavy lead coating on both sides). All joints are continuously soldered. Special de-greasing and etching processes insure tight bond of enamel to metal. Enamel finish is baked on at 325°F., colors available.

FABRICATED ALUMINUM Letters are fabricated of .091 to .125 select quality aluminum sheet. All joints are welded continuously with a heliarc weld and ground smooth. Sides are mill finished. Faces may be satin finished or polished to a bright mirror-like finish and Alumilited.† (Also can be color anodized or baked enamel.) Write for special information on porcelain-enameled aluminum letters.

MOUNTING METHODS



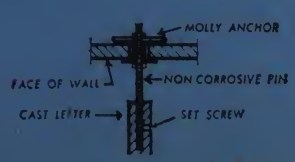
PM–1 flush



PM–2 extended sleeve



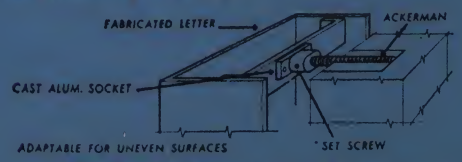
B–3 bracket



S–5 pin



Free standing letter #4



S–6 socket extended pin & set screw

"SERVING DISCERNING ARCHITECTS THROUGHOUT THE UNITED STATES AND MANY FOREIGN COUNTRIES FOR OVER TWENTY-FIVE YEARS, NELCO IS CONSTANTLY DEVELOPING NEW, UNUSUAL STYLES IN FABRICATED LETTERS TO KEEP PACE WITH THE LATEST DEVELOPMENTS IN MODERN ARCHITECTURE. MANY EXTRA FEATURES ARE A PART OF OUR REGULAR SERVICE TO YOU; MADE POSSIBLE BECAUSE WE MANUFACTURE OUR LETTERS FROM THE SHEET OR INGOT TO THE FINISHED PRODUCT. PLANNING STARTS WITH THE RAW METAL AND ENDS WITH AN ENGINEERED INSTALLATION. THROUGH OUR CLOSE COOPERATION WITH ARCHITECTS AND OTHER EXPERTS IN THE FIELD, WE HAVE ESTABLISHED STANDARDS WHICH MEET THE HIGHEST REQUIREMENTS THROUGHOUT THE COUNTRY."

Suggested Specifications

Furnish and install all Metal Letters as manufactured by Nelco Metalcraft, Inc., where called for on the plans, and of the size and type indicated below.

SIZE_____MATERIAL_____FINISH_____

STYLE_____DEPTH_____STROKE_____

CROSSES and CADUCEI—Any design and size may be fabricated in cast aluminum or bronze, fabricated aluminum, extruded aluminum, stainless steel, porcelain and plexiglass face. All junctures are welded or bolted and ground to an invisible joint. Aluminum crosses and caducei are treated in natural, satin alumilite or baked enamel finish. Back lighting or other special effects may be incorporated to your specifications.

If You Want The Best, Specify **NELCO!**

NELCO

F. T. NELSON, President

METALCRAFT, INC.
3036 WEST CHICAGO AVE.
CHICAGO 22, ILLINOIS
Phone: SAcramento 2-4444

PRINTED IN USA



12" high, cast aluminum, satin alumilite finish.



Stainless steel.



Cast aluminum plaque.

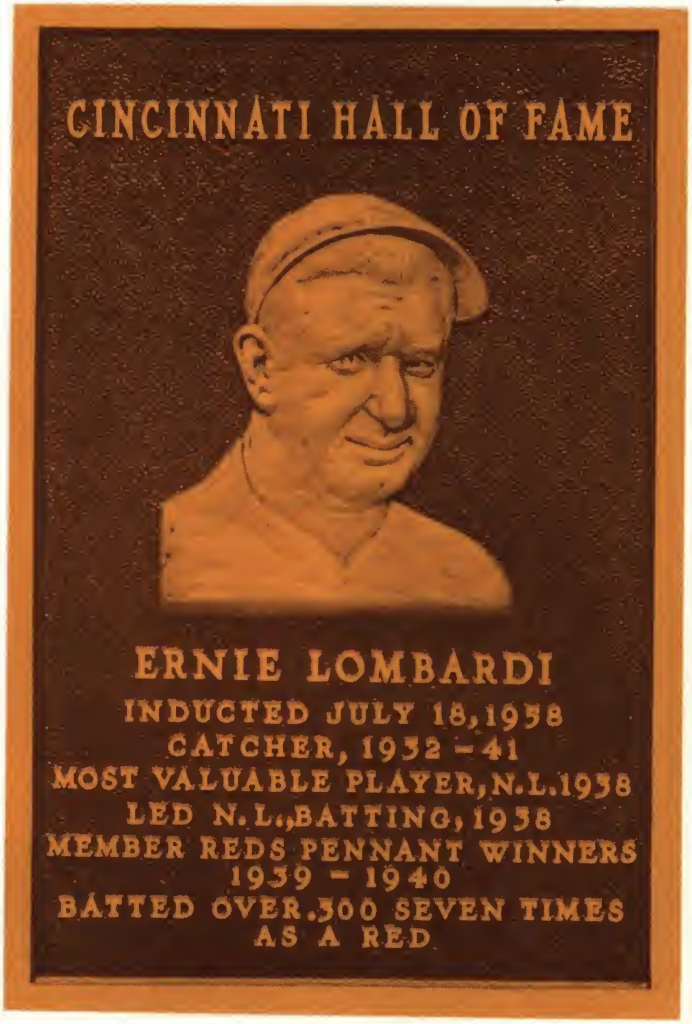


13" plexiglass-faced, baked enamel sides.



36" porcelain enamel letters.



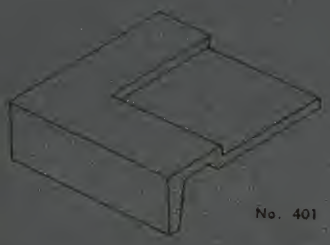


ALUMINUM AND BRONZE **TABLETS**

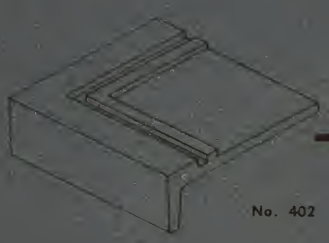
hand-chased by Newman

FAMOUS FOR FINER QUALITY SINCE 1882

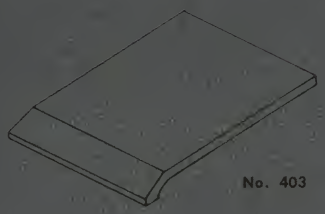
NEWMAN BROS., INC., CINCINNATI 3, OHIO



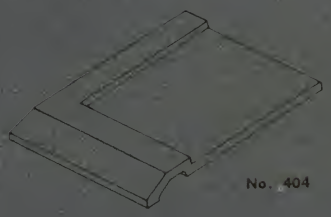
No. 401



No. 402



No. 403



No. 404



No. 405



No. 406

standard tablets

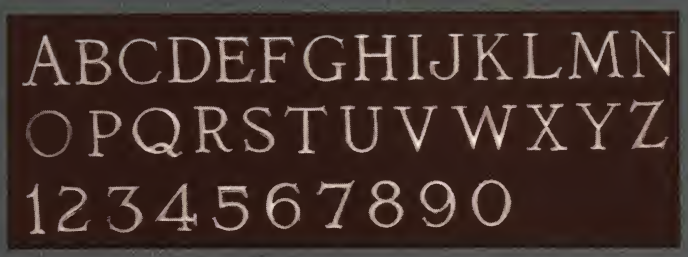
NEWMAN has patterns for all of these different styles of tablet letters in sizes from ¼″ high, to take care of all normal requirements. More information, also estimates of cost, will be supplied upon request.
Note: Special letters can be used, for which we must make patterns; such as trademark styles, script, italics, etc.

classic borders

Sectional views #401 to 406 inclusive are of borders for which we have scores of patterns in sizes suited to almost all of your needs. And we have hundreds of other patterns in a wide range of sizes for both plain and ornamental tablet borders. You are invited to send inscriptions for our recommendations and estimates.

available data

You need our Tablet Catalog in your permanent files. It contains 22 pages of photographs of fully hand-chased cast aluminum and bronze plaques and plates, details of standard fastenings, and other valuable information.
Write for your free copy.



Architectural (Oval Face)



Ribbon (Flat Face)

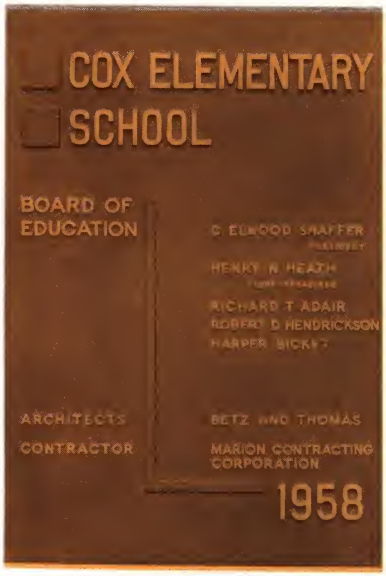
modern faces



Classic (Flat Face)







suggested specifications

Tablets shall be manufactured by NEWMAN BROTHERS, INC., Cincinnati, cast of pure bronze (nickel silver, aluminum) with letters clean cut and accurately spaced and aligned; produced in baked French sand moulds, and shall be free from blowholes, pits and all other imperfections. Raised portions on an even plane shall be highly burnished after all letters, borders, ornaments, etc., have been fully and expertly hand-tooled. Backgrounds shall be acid-oxidized a dark contrasting color. Machined non-ferrous anchor bolts for screwing into bosses on the reverse side (or non-ferrous throughbolts with cover rosettes) shall be provided. Rubbings from patterns shall be submitted to the architect for approval.

lettering styles Architecturally Correct . . .

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z &
1 2 3 4 5 6 7 8 9 0 . .

Condensed Classic (Flat Face)

ABCDEFGHIJKLMN
OPQRSTUVWWXYZ&
1234567890

Deep Block (Flat Face)

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

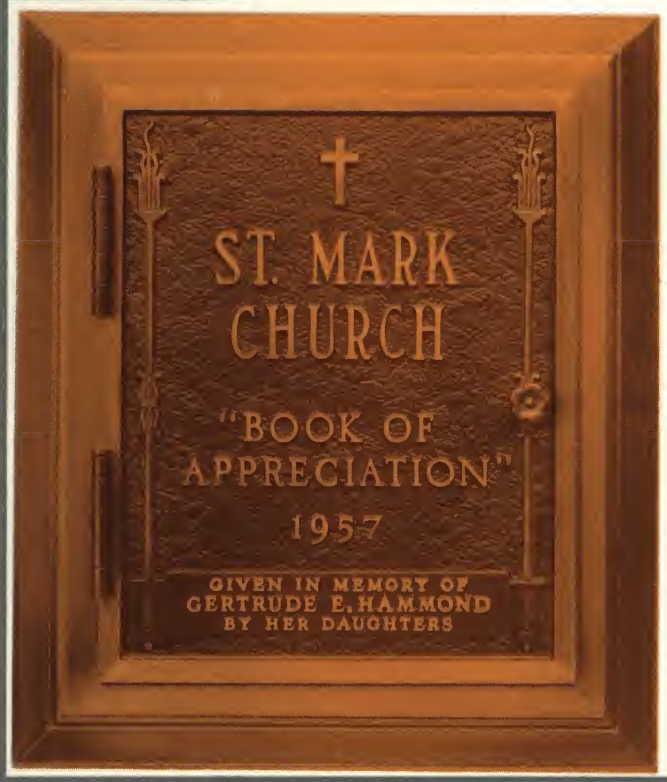
Broadway (Flat Face)

A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z &
1 2 3 4 5 6 7 8 9 0 . ,

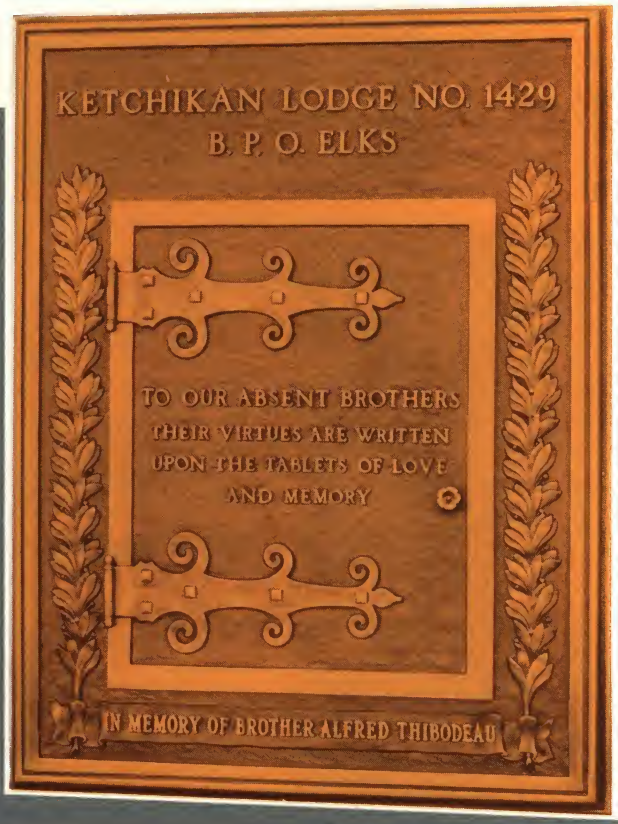
Condensed Deep Block (Flat Face)

Beautiful . . . Compact . . . Economical

CRAFTED IN HAND-TOOLED BRONZE OR ALUMINUM
EXCLUSIVELY BY NEWMAN



BOOK OF APPRECIATION: A hand-chased bronze or aluminum frame and plaque with hinged door. Overall size measures 15" wide x 18" high with capacity of seven bronze or aluminum pages.



BOOK OF MEMORY: A beautifully finished cast bronze or aluminum frame and cover where more name space is required. Overall size measures 25" wide x 32" high and will accommodate up to ten pages in bronze or aluminum.



Enthusiastically endorsed by CHURCHES, COLLEGES, SCHOOLS, HOSPITALS, INSTITUTIONS, LODGES, MEMORIAL COMMITTEES . . . in fact, wherever donors or contributors are to be registered or individuals memorialized for posterity.



BOOK OF APPRECIATION: Each bronze or aluminum page will hold up to 150 names etched in bold relief. Total capacity is 1050 names.

BOOK OF MEMORY: Bronze or aluminum pages are etched in heavy relief and each will hold up to 325 names. Total capacity is 3250 names.

EXCLUSIVE: Add-A-Plate feature permits the addition of names in the future . . . easily and economically.

NEWMAN BROTHERS, INC. • 660 W. FOURTH ST. • CINCINNATI 3, OHIO

ARCHITECTURAL

letters

BRONZE · ALUMINUM · BRASS · NICKEL SILVER

tablets



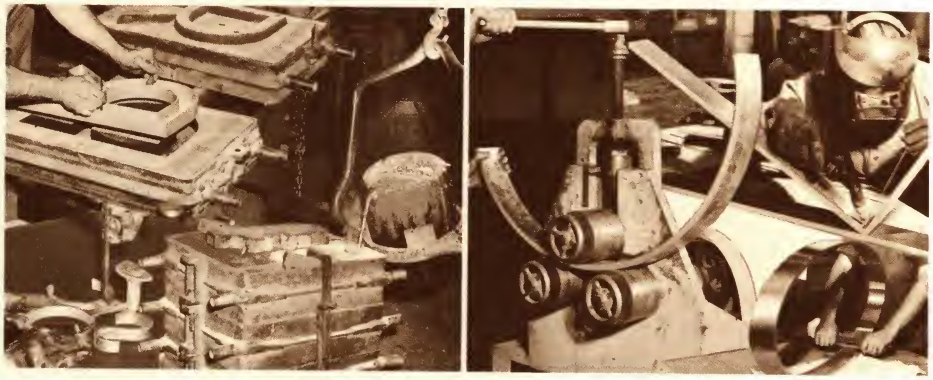
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Architectural Metalcraft	12

A. I. A. FILE NO. 15-R-1



LETTERS



CORRECT METALLURGY FOR PERMANENT IDENTIFICATION

Bronze is one of the world's most beautiful metals—and one of the most durable. Statuary cast by the ancient Greeks and Romans is still sound and beautiful after more than two thousand years.

Such durability is the result of a unique physical property of bronze which causes the formation of hard oxides on exposed surfaces. This contributes the rich metallic coating which effectively resists attacks of time and the elements.

Aluminum, properly alloyed, is similarly resistant to the elements, and is widely accepted as a permanent decorative metal for architectural letters, plaques and tablets.

BEAUTIFULLY DESIGNED IN OVAL AND FLAT FACE LETTERS

Letters of Oregon Brass Works are available in both contemporary and traditional styles. To add further variety, most of these styles are designed and manufactured in both oval and flat face, making a total of sixteen beautiful standard types readily available for your selection.

All curved sided letters are increased in nominal height so as to appear optically correct when adjacent to straight sided letters.

MANUFACTURED BY CASTING AND FABRICATION

Incorporating the experience of more than a half century of metalcrafting, these letters are produced by casting or fabrication, whichever is more practical for each individual order. Finish of the letters is done with great care and precision and we welcome a direct comparison with metal letters from any other source and at any price.

HOW TO DETERMINE HEIGHT AND LENGTH OF LETTERING

As a general rule, each letter and space between words requires an average width space equal to the letter height. Thus the length of a line of three words containing ten letters and two spaces between words would be approximately twelve times the height of the individual letters.

To determine the maximum letter height for a given length of lettering, according to this rule of thumb, divide the length by the number of letters, counting each space between words as one letter.

To determine the length of a line of lettering, multiply the number of letters and spaces between words by the height of the letters desired.

The optical spacing principle, an innovation of Oregon Brass Works, has been perfected to assure correctly balanced spacing of letters. Tracing sheets incorporating this principle are available upon request.

HOW TO ORDER OBW LETTERS

So that your order may be filled to your complete satisfaction, it is necessary that we receive the following information: Style of letter (Lowline, Neubold, etc.) ; oval or flat face; size of letters; Material (bronze or aluminum) ; alloy desired; finish desired; type of installation. See page 7 for details.

Unless specified in alternate or special finishes, letters will be furnished in standard finishes as noted on page 7.

Copyright, 1959, Oregon Brass Works

bronze & aluminum LETTERS

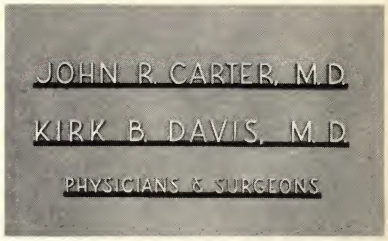
LOWLINE

LETTER BARS

These are flat face single stroke sans-serif letters cast integral with a stippled moss finish bar. Installed as easily as one conventional letter, letter bars are ideal for nameplates, identifications and directional signs. Also available as individual letters. Note: not available in Alloy Z26 and F214 due to metallurgical limitations.







DIMENSIONS
LOWLINE LETTERS

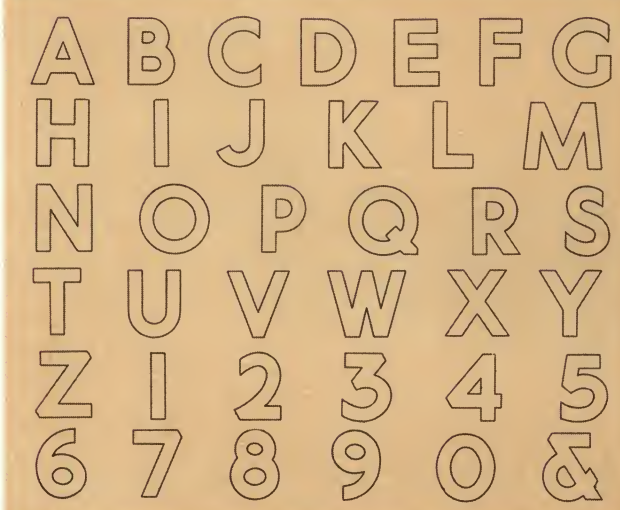
Letter Size Height (Inches)	Face Stroke (Inches)	Letter Depth (Inches)	Bar Stroke (Inches)
1	3/32	3/8	1/2
1-1/4	1/8	3/8	1/2
1-1/2	5/32	3/8	1/2
2	3/16	3/8	1/2
2-1/2	3/16	3/8	5/8
3	7/32	5/8	5/8
4	3/8	5/8	5/8

NEUBOLD

FLAT FACE ONLY



A bold sans serif single stroke letter of dominant character, ever increasing in popularity. Styling is similar to the tried and true Block letter, except it is more contemporary in design.



DIMENSIONS
NEUBOLD LETTERS

Letter Size Height (Inches)	Face Stroke Width (Inches)	Letter Depth Thickness (Inches)
2	7/16	1/2
3	5/8	5/8
4	13/16	3/4
5	1-1/16	7/8
6	1-1/4	1
7	1-1/2	1-1/8
8	1-11/16	1-1/4
9	1-7/8	1-3/8
10	2-1/8	1-1/2
12	2-1/2	1-3/4
14	3	2
15	3-1/8	2-3/16
16	3-3/8	2-3/8
18	3-3/4	2-3/4
20	4-1/4	2-7/8
24	5	3

BROADWAY

FLAT FACE

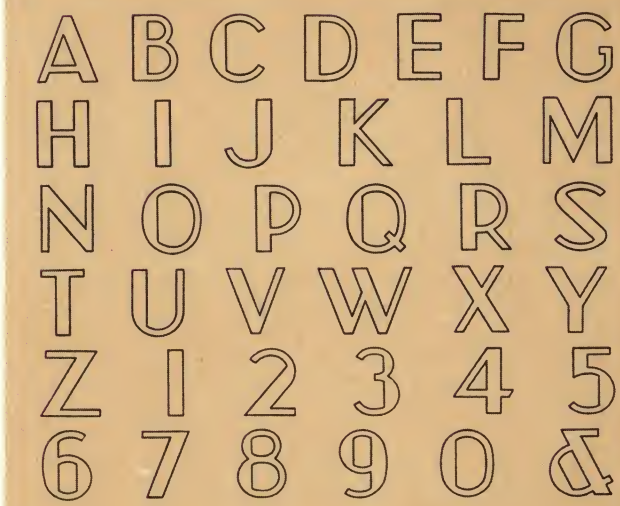


This alphabet is a modern adaptation of the sans-serif letter which combines accentuated thick and thin strokes to achieve a novel, bold appearance. The strength of the letter is in its simplicity which contributes freshness to all types of architecture.

BROADWAY

OVAL FACE





DIMENSIONS
BROADWAY LETTERS

Letter Size Height (Inches)	Width Face Stroke (Inches)	Letter Depth Thickness (Inches)
1-1/2	5/16	3/16
2	7/16	3/16
2-1/2	1/2	3/16
3	5/8	7/32
4	13/16	1/4
5	1-1/16	1/4
6	1-1/4	9/32
7	1-7/16	5/16
8	1-11/16	5/16
9	1-7/8	5/16
10	2-1/16	3/8
12	2-1/2	3/8
14	2-13/16	9/16
15	3-1/8	9/16
16	3-7/16	5/8
18	3-3/4	11/16
20	4-3/16	3/4
24	5	7/8

Width of thin stroke equals 50% of wide stroke.

OREGON BRASS WORKS

LETTERS

YUKON

OVAL FACE

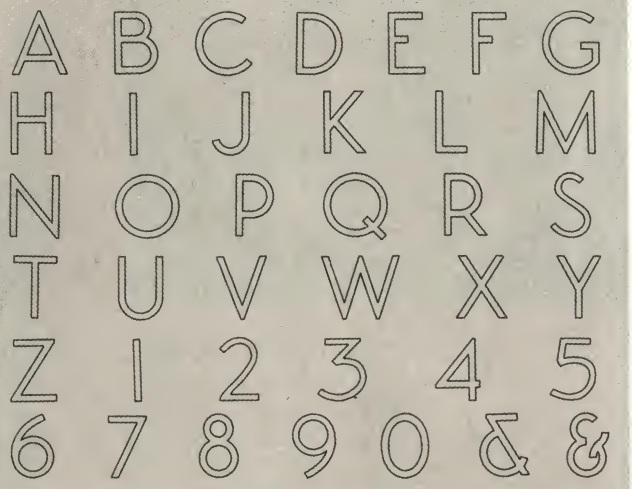


This is a fresh new bold ribbon style of excellent visibility with a heavy face stroke and emphasized depth. When viewed from the side, the depth of letters produces dramatic shadow effects.

YUKON

FLAT FACE





DIMENSIONS
YUKON LETTERS

Letter Size Height (Inches)	Face Stroke Width (Inches)	Letter Depth Thickness (Inches)
1-1/2	7/32	23/32
2	1/4	3/4
2-1/2	9/32	25/32
3	5/16	27/32
4	11/32	15/16
5	3/8	1
6	7/16	1-3/32
7	15/32	1-3/16
8	1/2	1-1/4
9	17/32	1-11/32
10	9/16	1-13/32
12	5/8	1-19/32
14	11/16	1-3/4
15	23/32	1-13/16
16	3/4	1-29/32
18	13/16	2-1/16
20	29/32	2-7/32
24	1-1/16	2-17/32

FIFTH AVENUE

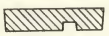
OVAL FACE



This letter is similar to the Broadway, with novelty added by a style line groove which appears on the flat face letters in sizes 4 inches and larger. Oval face in all sizes and flat face letters smaller than 4 inches do not have the style line grooves.

FIFTH AVENUE

FLAT FACE





DIMENSIONS
FIFTH AVENUE LETTERS

Letter Size Height (Inches)	Width Face Stroke (Inches)	Letter Depth Thickness (Inches)
1-1/2	5/16	3/16
2	7/16	3/16
2-1/2	1/2	3/16
3	5/8	7/32
4	13/16	1/4
5	1-1/16	1/4
6	1-1/4	9/32
7	1-7/16	5/16
8	1-11/16	5/16
9	1-7/8	5/16
10	2-1/16	3/8
12	2-1/2	3/8
14	2-13/16	9/16
15	3-1/8	9/16
16	3-7/16	5/8
18	3-3/4	11/16
20	4-3/16	3/4
24	5	7/8

Width of thin stroke equals 50% of wide stroke.

ROMAN

OVAL FACE

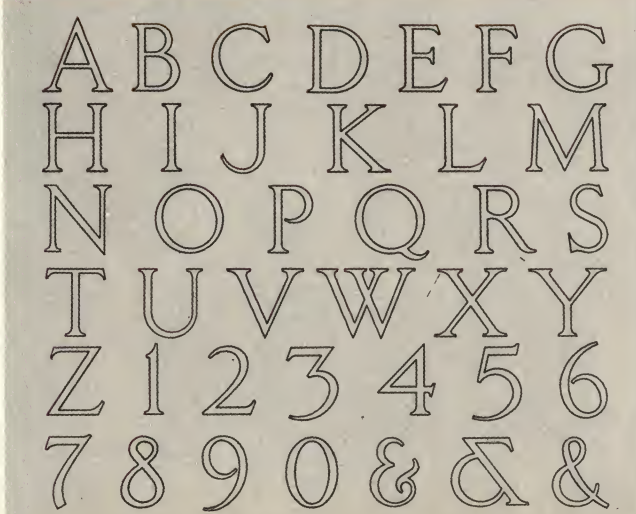


Classical in styling, the Roman alphabet has been the most widely used of all letters. It is distinguished by a graceful combination of thick and thin face strokes, and is particularly appropriate where a traditional effect is desired.

ROMAN

FLAT FACE





DIMENSIONS
ROMAN LETTERS

Letter Size Height (Inches)	Width Face Stroke (Inches)	Letter Depth Thickness (Inches)
1-1/2	5/32	5/32
2	7/32	5/32
2-1/2	1/4	3/16
3	9/32	7/32
4	7/16	1/4
5	1/2	5/16
6	19/32	5/16
7	11/16	5/16
8	13/16	3/8
9	29/32	3/8
10	1	7/16
12	1-3/16	1/2
14	1-3/8	1/2
15	1-1/2	9/16
16	1-5/8	9/16
18	1-13/16	5/8
20	2	11/16
24	2-3/8	7/8

Width of thin stroke equals 62% of wide stroke.

bronze & aluminum LETTERS

MONTAVILLA



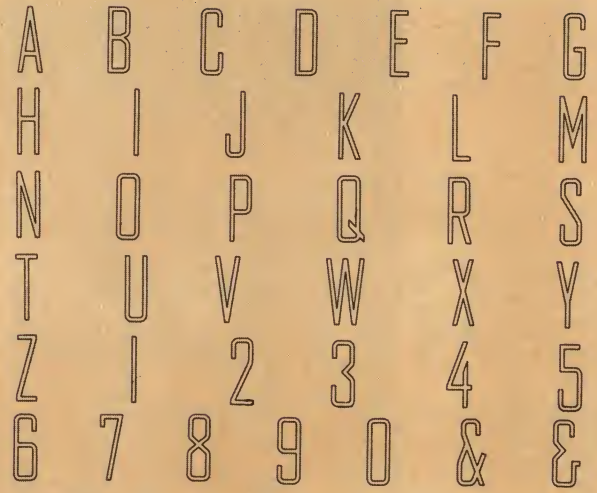
FLAT FACE

This condensed ribbon type allows the use of larger letters for a given horizontal distance than is possible with any other style. Can be used with Yukon style to achieve an interesting contrast effect.

MONTAVILLA



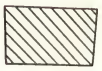
OVAL FACE



DIMENSIONS
MONTAVILLA LETTERS

Letter Size Height (Inches)	Face Stroke Width (Inches)	Letter Depth Thickness (Inches)
1-1/2	1/8	5/16
2	1/8	3/8
2-1/2	5/32	7/16
3	3/16	1/2
4	1/4	11/16
5	5/16	13/16
6	3/8	1
7	7/16	1-3/16
8	1/2	1-5/16
9	9/16	1-1/2
10	5/8	1-11/16
12	3/4	2
14	7/8	2-1/8
15	15/16	2-3/16
16	1	2-1/4
18	1-1/8	2-1/2
20	1-1/4	2-3/4
24	1-1/2	3

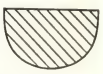
BLOCK



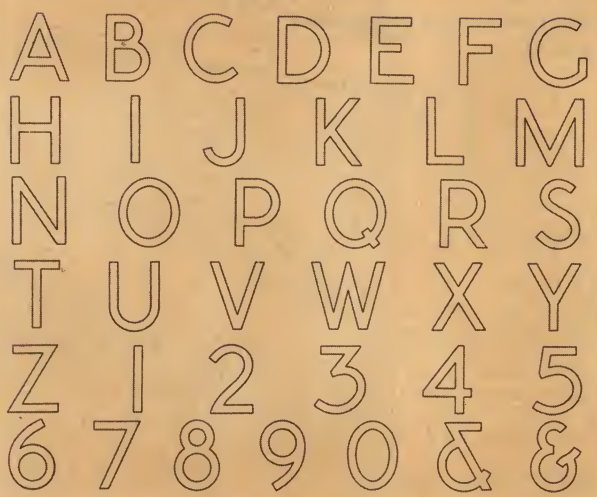
FLAT FACE

Beautifully proportioned, simple and masculine in appearance, and unexcelled for legibility, the Block letter is adaptable and appropriate for almost any inscription. Like the Roman letter, it remains in style despite changing theories of design.

BLOCK



OVAL FACE



DIMENSIONS
BLOCK LETTERS

Letter Size Height (Inches)	Face Stroke Width (Inches)	Letter Depth Thickness (Inches)
1-1/2	3/16	3/16
2	1/4	3/16
2-1/2	5/16	1/4
3	3/8	1/4
4	1/2	11/32
5	5/8	7/16
6	3/4	1/2
7	7/8	19/32
8	1	11/16
9	1-1/8	3/4
10	1-1/4	7/8
12	1-1/2	1
14	1-3/4	1-3/16
15	1-7/8	1-1/4
16	2	1-3/8
18	2-1/4	1-1/2
20	2-1/2	1-3/4
24	3	2

LYNWOOD

FLAT FACE

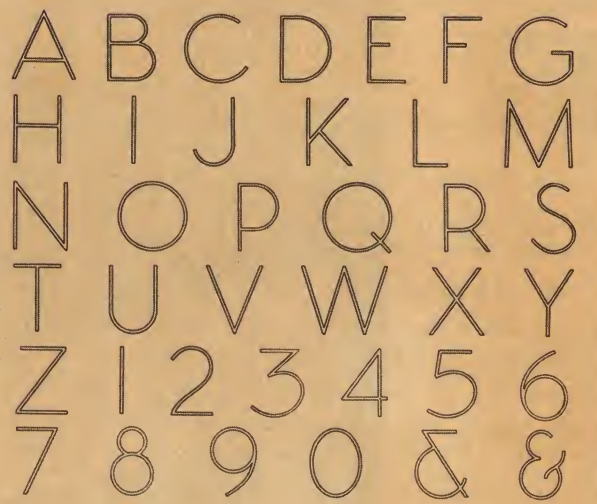


A light Ribbon type letter having a narrow stroke and emphasized depth, giving the effect of having been fashioned of thin ribbons of metal standing on edge. As with the Yukon and Montavilla styles, the depth of letters produces dramatic shadow effects.

OVAL FACE



LYNWOOD



DIMENSIONS
LYNWOOD LETTERS

Letter Size Height (Inches)	Face Stroke Width (Inches)	Letter Depth Thickness (Inches)
1-1/2	1/8	1/2
2	5/32	5/8
2-1/2	3/16	3/4
3	3/16	3/4
4	3/16	3/4
5	1/4	1
6	1/4	1
7	1/4	1-1/4
8	1/4	1-1/4
9	1/4	1-1/4
10	5/16	1-1/2
12	5/16	1-1/2
14	5/16	1-1/2
15	3/8	2
16	3/8	2
18	3/8	2
20	3/8	2-1/2
24	3/8	2-1/2
30	1/2	3

OREGON BRASS WORKS

Special Letters

In addition to the sixteen letter styles illustrated, Oregon Brass Works also produces custom designed letters to create unusual effects desired by architects and designers. With all facilities from the drafting board to final finishing under one roof, we are able to follow faithfully the full size detail drawings supplied us by the designer.

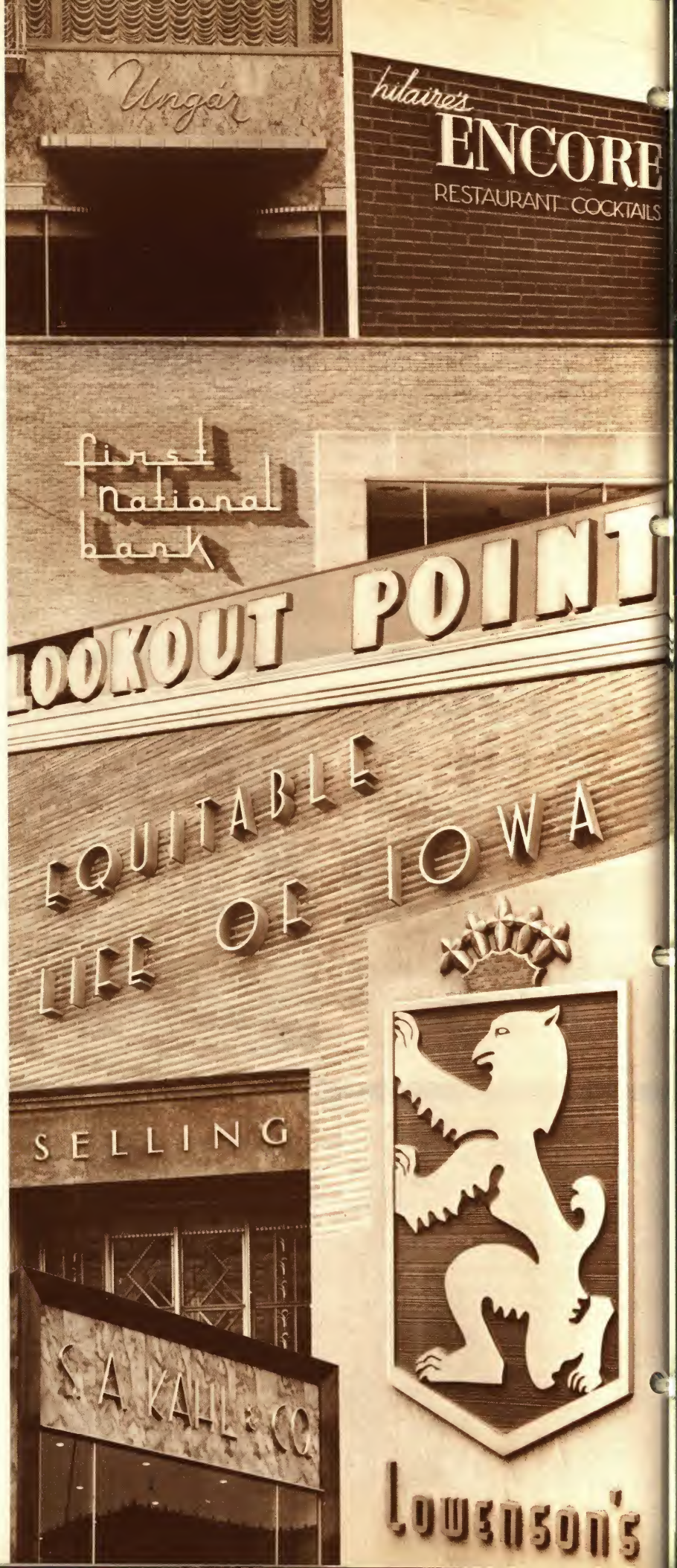
Some letter styles may be produced in stainless steel. However the limitations of this metal are such that it does not lend itself to production in all sizes or in some of the other styles. Special inquiry should be made before commitment.

Cost of Special Letters

Special letters may be produced either by casting or fabrication, depending upon the character of the design. Cost of special shape fabricated letters is generally comparable to standard shape fabricated letters of the same size and section, and varies from the standard roughly in proportion to the difference in size and sectional dimensions. The same rule applies to cast letters, except that the cost of special patterns must of course also be added.

You are invited to consult us about special letters or related subjects. Our extensive experience enables us to determine the most practical way of achieving the results you desire.

When ordering special letters, please forward explanatory drawings indicating design, sections and size, specifying material, finish and mounting desired.



bronze & aluminum LETTERS

In the manufacture of metallic letters, especially aluminum, it is highly important to know in advance of any unusual atmospheric or other conditions. This is necessary in order to select the proper alloy and final finish best suited to these particular conditions. The standard finishes listed below are suitable for most uses. In the case of extreme conditions caused by salt air or industrial fumes, consult our metallurgists and engineering specialists.

As one of the many copper base alloys, bronze is subject to normal, natural aging process and when exposed to the atmosphere and elements with no protective coating, a gradual darkening and deepening of color occurs. Over a period of years it will turn to a dark, rich brown metallic shade. This is natural and normal, and is not to be misconstrued as even the slightest deterioration.

BRONZE STD.
(NS-2CBL)
Satin bright face and dark statuary moss sides

BRONZE G
(NS-NSL)
Satin bright face, bright ground sides

BRONZE R
1CB-2CBL
Statuary dull moss finish all over



ALUMINUM STD.
(NS-NBL)
Satin bright face and dull moss sides

ALUMINUM G
(NS-NSL)
Satin bright face and bright ground sides

ALUMINUM D
(NS-EBL)
Satin bright face and lacquer enamel color sides



BRONZE ALLOYS

Our standard bronze alloy is T6, a natural red-gold bronze color of excellent appearance and physical properties.

Alternate alloys listed below are available upon special request only and at an increase in cost. They are sometimes used when unusual color contrasts are preferred. In natural color, they are:

"Yellow Brass," Alloy Z26, definitely yellowish in metallic tone.

"Gold Bronze," Alloy Z12, a soft, rich gold color between the yellow of yellow brass and the red of bronze.

"Nickel Silver," Alloy N15, a silver white with an amber tint having a depth akin to bronze.

BRONZE FINISHES

The natural aging process of bronze can be retarded through the use of a protective coating. For that reason all bronze letters, unless requested otherwise, are furnished with several coats of high grade clear lacquer. The standard finishes listed below are recommended. These take advantage of the natural characteristics of the metal, and have been uniformly successful in applications all over the country under all kinds of service conditions.

Material	Alloy	Finish	Description
		Standard Finish (furnished unless otherwise specified)	
Bronze Std	T6	NS-2CBL	Satin bright face, dark statuary moss sides, lacquered.
		Alternate Finishes (available only if specified)	
Bronze G	T6	NS-NSL	Satin bright face, bright ground sides, lacquered.
Bronze T	T6	1CS-2CBL	Statuary satin face, dark statuary moss sides, lacquered.
Bronze R	T6	1CB-2CBL	Statuary dull moss finish all over, lacquered.
Bronze D	T6	NS-EBL	Satin bright face, lacquer enamel color sides, lacquered.
Bronze E	T6	EB-EBL	Lacquer enamel color, face and sides.

ALUMINUM ALLOYS

For all general purposes alloy 43 is the most satisfactory as well as most economical. This is a high silicon alloy with excellent corrosion and stain resistant qualities. Where added resistance to the elements is required, the alumilited treatment is recommended. This is an electrolytic process which creates a dense adherent coating of aluminum oxide upon the metal surface, providing effective resistance to atmospheric attack. To achieve this, however, an alloy is required which is suitable to the alumiliting process. Thus, the end use or treatment determines in a great measure the alloy selection.

Material	Alloy	Finish	Description
		Standard Finish (furnished unless otherwise specified)	
Aluminum Std.	43	NS-NBL	Satin bright face, natural dull moss sides, lacquered.
		Alternate Finishes (available only if specified)	
Aluminum H	F214	NS-NBA	Standard finish, alumilited.
Aluminum G	43	NS-NSL	Satin bright face, bright ground sides, lacquered.
Aluminum M	F214	NS-NSA	Satin bright face, bright ground sides, alumilited.
Aluminum D	43	NS-EBL	Satin bright face, lacquer enamel color sides, lacquered.
Aluminum E	43	EB-EBL	Lacquer enamel color, face and sides.

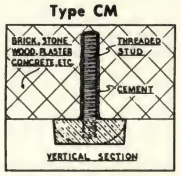
Other special finishes and textures, both bronze and aluminum are possible to suit specific requirements as sent in to us. Prices on application.

STANDARD LACQUER ENAMELS FOR COLORED SIDES

To emphasize the third dimension of flat face letters, the sides sometimes are coated in a contrasting color. DuPont "Duco" automotive colors have proved satisfactory under most conditions, and are available in any standard "Duco" color. Matched colors are available at some increase in cost. When such colors are desired, an exact color sample covering an area of one square foot should be furnished to us.

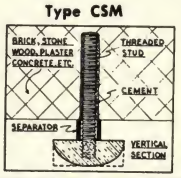
INSTALLATION OF LETTERS

Type CM



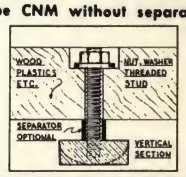
CONCEALED MOUNTING

Type CSM



CONCEALED MOUNTING WITH SEPARATOR

Type CSNM as shown
Type CNM without separators



CONCEALED MOUNTING WITH REAR ACCESS

All Oregon Brass Works letters are made for concealed mounting. Face mounting is also available, but is seldom recommended because it tends to deface the letters.

To obtain best results in installing OBW letters with concealed mounting, we recommend strict compliance with our standard mounting procedure instruction sheet. These are gladly furnished upon request; or if so specified they can be furnished with letter shipment.

SUGGESTED SPECIFICATIONS FOR LETTERS

Short Specifications *(under Building Specialty section.)* "The contractor shall allow and include in his bid the sum of $_____ for the purchase of the Bronze [or Aluminum] letters and install same as directed by the architect."

Note: We welcome the opportunity to cooperate in furnishing such above allowance sums for insertion in your specifications. The Architect or Designer thus retains complete control, and is assured the finest quality of metallurgy and workmanship.

Simplified Specifications *(under Building Specialty section).*

"_____Metal letters where shown or listed shall be
(Aluminum, Bronze, etc.)
_____style,_____inches high, as manufactured by Oregon Brass Works, 1127 S. E. 10th Avenue, Portland 14, Oregon. Letters to be of stroke and depth in strict accordance to that listed by this manufacturer. Finish shall be_____.
(specify finish)
Alloy shall be that recommended by this manufacturer as the most suitable for lasting results relative to finish specified. Manufacturing processes, either cast or fabricated, shall be in strict accordance with standards of the National Association of Ornamental Metal Manufacturers. Mounting shall be type_____. Scale [full scale] installation spacing layout will be furnished by Architect to letter contractor, for erection. [Alternate: Required of letter contractor, and must be submitted for approval before erection.]"

Nameplates & Cornerstone Tablets

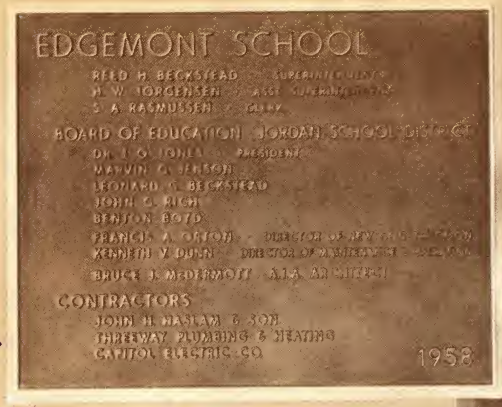


Fig. 401—Ribbon Flat Face Letters—Medium Pebble Texture—Standard Border No. 5—Horizontal Shape—Concealed Mounting.



Fig. 402 — Special Script Letters — Medium Pebble Texture—Special Border — Horizontal Shape — Concealed Mounting.

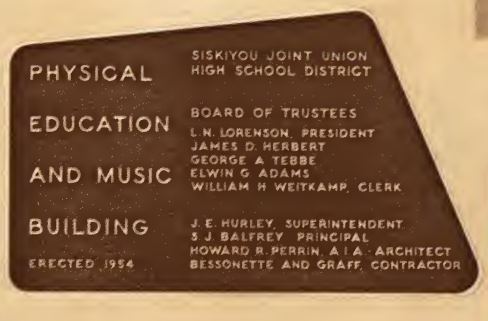


Fig. 403—Block Flat Face Letters—Leatherette Texture — Special Raised Border — Special Shape — Concealed Mounting.



Fig. 404—Architectural Oval Face Letters — Medium Pebble Texture—Standard Border No. 2—Special Vertical Shape—Concealed Mounting.



Fig. 405—Block Flat Face Letters with Special Numerals — Medium Pebble Texture—Modified Border No. 2 — Horizontal Shape — Concealed Mounting.

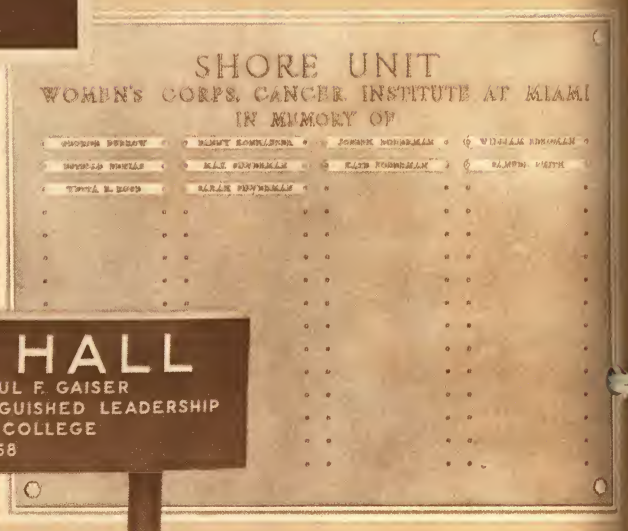
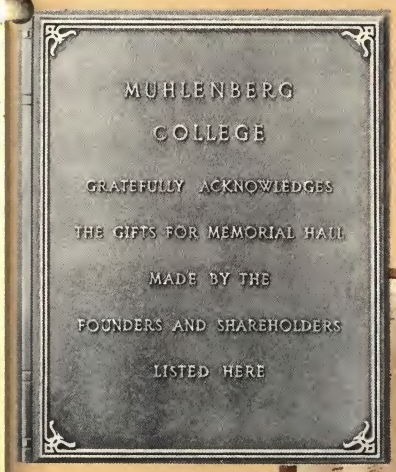


Fig. 406—Architectural Oval Face Letters—Medium Pebble Texture — Standard Border No. 6 — Horizontal Shape—Face Mounting.



Fig. 407—Block Flat Face Letters—Moss as Cast Finish—No Border—Special Shape—Special Mounting.

Memorial plaques
Sculptured plaques



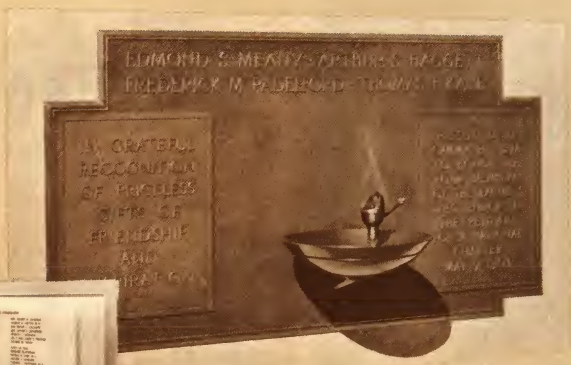


Fig. 408—Architectural Oval Face Letters – Leatherette Texture – Standard Border No. 3 – Special Shape—Concealed Mounting.

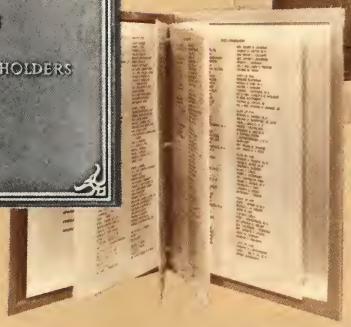


Fig. 409—Architectural Oval Face Letters—Special Texture—Special Borders—Vertical Shape, hinged for book-type opening to reveal inner pages.

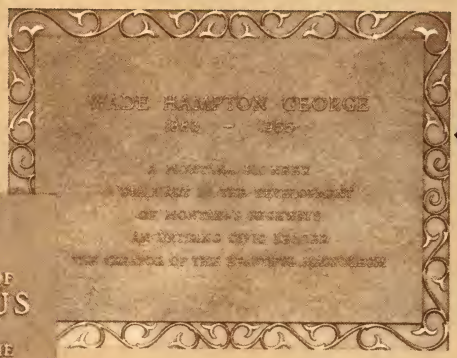


Fig. 410—Heroic Oval Face Letters Leatherette and Special Textures —Special Border—Horizontal Shape —Concealed Mounting.

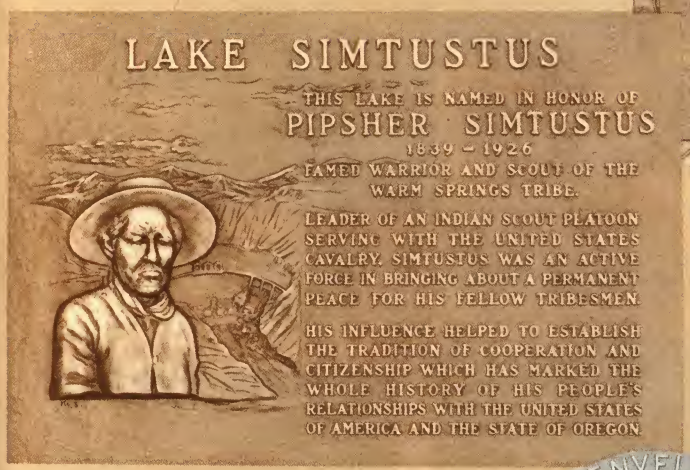


Fig. 411—Runic Flat Face Letters —Sculptured Texture—No Border —Horizontal Shape—Concealed Mounting.



Fig. 412—Special Flat Face Letters – Medium Pebble Texture – Special Border—Circular Shape—Concealed Mounting.



Fig. 413—Sculptured Letters and Texture – Circular Shape – Concealed Mounting.

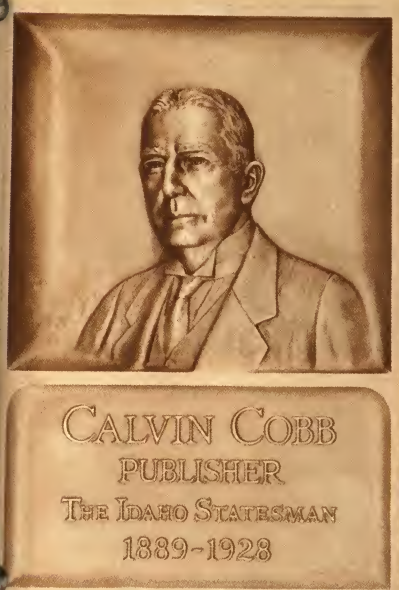


Fig. 414—Special Sculptured Letters and Texture—Special Border – Vertical Shape – Concealed Mounting.



Fig. 415—Heroic Oval Face Letters —Sculptured Texture—No Border —Special Shape—Concealed Mounting.

Pantograph Plates

Pantograph machine cut lettering is incised in prepared plates of aluminum or bronze in a variety of standard reduction sizes ranging from approximately 1/8 inch to 1¾ inches in height. They are especially desirable when the letter height is less than 5/16 inch, and are frequently used for inscriptions on trophy cases or for gift identifications.

Lettering may be bright on plates of dark statuary bronze and dark aluminum, or dark lettering on light bronze and light aluminum plates. With the exception of freehand writing effects, lettering style of pantograph plates is restricted to the block adaptations shown in the accompanying illustrations.

In ordering pantograph plates please give size of plate, exact wording of inscription, finish of plate and letters, and kind of mounting desired.



Fig. 416—Light lettering on dark statuary plate.



Fig. 417 — Reproduction of hand writing in combination with regular lettering style. Letters are finished dark on light bronze with dark statuary bronze corners.

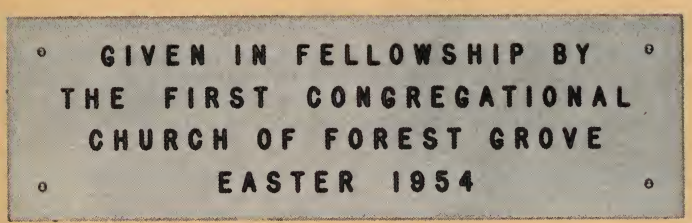


Fig. 418—Dark lettering on light aluminum plate.

Specification Data

Colors and Finishes

NS-1CBL LIGHT STATUARY BRONZE
Recommended for interiors, also for exterior use if gradual darkening is not objectionable.

NS-2CBL DARK STATUARY BRONZE
Recommended for exterior use. Akin to the rich brown color created by the natural aging process.

NS-NBL LIGHT ALUMINUM
Neutral in character, therefore recommended for use with contrasting backgrounds either in or out of doors.

NS-1CBL DARK ALUMINUM
Recommended for a metallic depth of aluminum color background for contrast.



Surface Textures

To establish the relation between surface texture and letter size, raised letters on the panels below were ¾ inch in height.

FINE PEBBLE
Recommended only for plates and tablets of not more than 150 square inches. On larger surfaces the pebble texture background tends to become indistinct, with consequent loss of quality.

MEDIUM PEBBLE
Most popular texture, suitable for almost any use. Provides appearance of added background depth. Also available in reverse pebble texture.

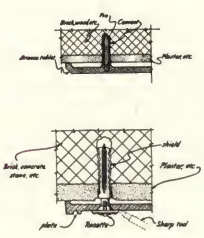
LEATHERETTE
Suitable for most uses. A distinctive texture for rich background contrast.

MOSS AS CAST
A cast-in texture with dull, flat surface and finished to retain some of the rough foundry characteristics. Not recommended for surfaces of more than 300 square inches.

MOSS SATIN
Primarily for plaques with applied letters. Limited in use and most expensive texture because of handwork involved.



Installation Methods



Concealed Mounting: Recommended for most tablets, and by far the most popular method of mounting. Absence of any visible means of fastening discourages vandalism or souvenir collections. Concealed Installation Instruction Sheets gladly furnished upon request, and included with every tablet shipped.

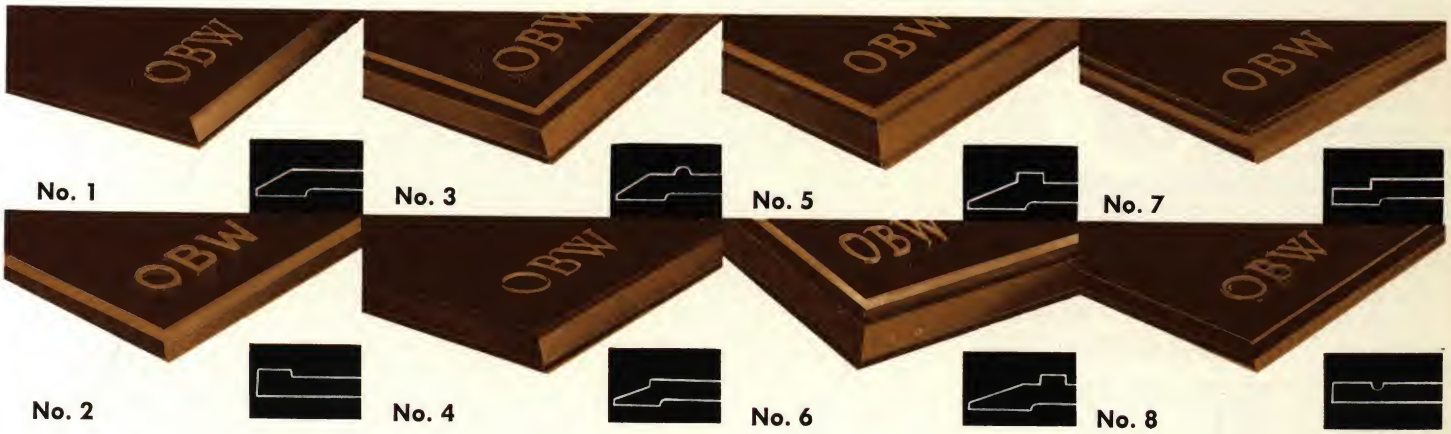
Face Mounting: A secondary method used when concealed method is not practical or feasible due to structural or other considerations. Depending upon type of wall or surface, wood screws, toggle bolts or machine screws may be used with decorative cover rosettes. Face Mounting Installation Instruction Sheets gladly furnished upon request, and included with every tablet shipped.

for Tablets, Plaques and Plates

Standard Border Types

Distinctive plaques are careful combinations of enduring rich metals, expert craftsmanship, and artistic blending of letters and borders. Styles shown below are standard border types immediately available in either bronze or aluminum at no extra cost.

For special borders, please submit sketches or discuss your desires with one of our experienced designers.



Standard Letter Styles

The eight attractive letter styles shown below are available for bronze and aluminum tablets at no extra cost. Desired contrasts can be accomplished by using various sizes and styles in combination.

Special letter styles are also available at slight extra cost. A tablet letter style folder may be obtained upon request. For spacing, the rule of thumb applies—*each letter and space between words requires a horizontal distance approximately equal to the size of the letters, subject to the plus or minus factor noted in the folder.*

Architectural Oval Face
Sizes 5/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/2", 3".

Heroic Oval Face
Sizes 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/2".

Classic Flat Face
Sizes 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/2", 3".

Condensed Flat Face
Sizes 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/2", 3".



Runic Flat Face
Sizes 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/2", 3".

Block Flat Face
Sizes 5/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/2", 3".

Gothic Oval Face
Sizes 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/2".

Ribbon Flat Face
Sizes 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 1", 1 1/4", 1 1/2".



Specifications:

Short Specifications *(under Building Specialty section).* "The contractor shall allow and include in his bid the sum of $_____ for the purchase of the Bronze [Aluminum] tablet, and install same as directed by the Architect."

Note: We welcome the opportunity to cooperate in furnishing such above allowance sums for insertion in your specifications. In this way the Architect or Designer retains complete control, and is assured the finest quality of metallurgy and workmanship.

Simplified Specifications *(under Building Specialty section).* "The contractor shall furnish and install_____ (Quantity) Bronze [Aluminum] tablet(s)_____ inches by_____ inches in size, with approximately_____ (quantity) letters of inscription.

"Tablet(s) to have_____ _____ style lettering, No._____ border type,_____ _____ surface texture, _____ color and finish, with_____ type mounting

All as manufactured by Oregon Brass Works, 1127 S. E. Tenth Avenue, Portland 14, Oregon.

"Casting quality, detailed hand chasing, chemical oxidation, finishing and protective lacquer coating shall be in strict accordance with the standards of the National Association of Ornamental Metal Manufacturers.

"Tablet manufacturer shall furnish accurate scale detail showing tablet and letter sizes, inscription arrangement, full scale border section, mounting and other complying factors of Specifications for approval [Alternate: Architect or Designer will furnish complete details relating to tablet]."

How to Order:

When ordering, please specify Bronze or Aluminum; tablet size; letter style; type of border; texture; color and finish; type of mounting. If possible, accompany order with rough sketch showing any special arrangement of letters or other features. Because all names and words will be cast exactly as submitted in your copy, it is essential that they be thoroughly checked for complete accuracy. Upon receipt of a definite order, scale layout sketches will be submitted for approval of spelling and arrangement.

Architectural Metalcraft

In producing architectural metalcraft of the finest quality, Oregon Brass Works offers complete plant facilities for cast and fabricated bronze and aluminum. Along with the physical facilities we have expert craftsmen with a rich background of experience and a determination to execute each assignment as perfectly as can be done with human hands. Their finished product adds a final touch of elegance and quality to the building for which it is designed.

Our metallurgists and engineers are available for consultation at any time, and your inquiries are invited.

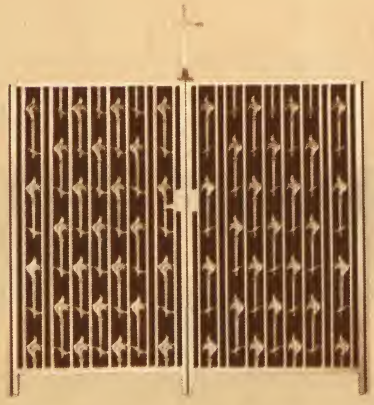


Fig. 419—Bronze baptistry gates in the Star of the Sea Church. Architect: William I. Williams.



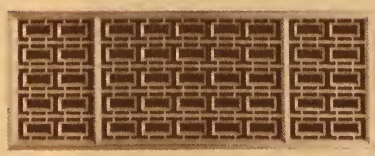
Fig. 420—Cast bronze doors for large metropolitan bank. Architects:. A. E. Doyle and Associates. Sculptor: Avard Fairbanks.



Fig. 421—Decorative doors and grillwork of Holyrood Mausoleum, Seattle. Architect: John W. Maloney.



Fig. 422—Ornamental grillwork and directory at a western university. Architect: John W. Maloney.



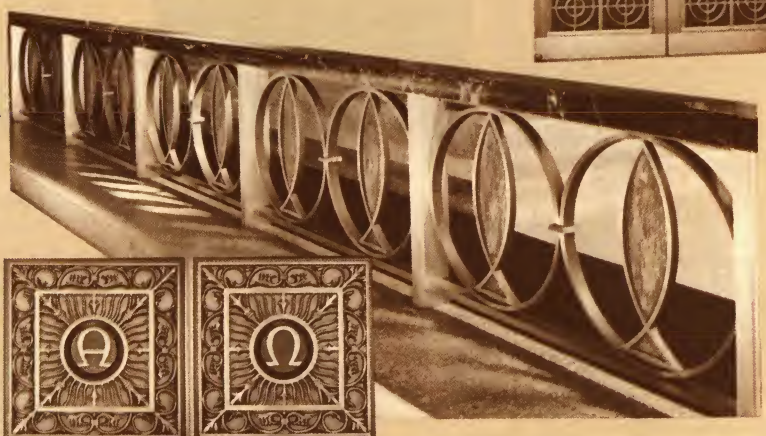


Fig. 423 — Communion railing of bronze is used in combination with a top rail of marble. Architect: E. L. Mills & Assoc.

Fig. 424—Cast bronze altar gates.

Oregon Brass Works products are distributed only through reliable and qualified representatives in good standing with the Building Industry. They are located in principal cities of the United States and Canada. Write us for the name and address of the nearest representative.

OBW

OREGON BRASS WORKS

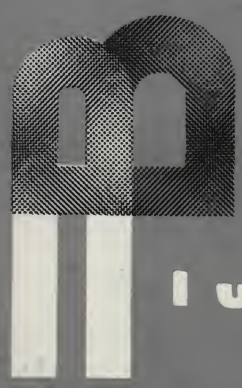
Telephone BElmont 2-7121 • 1127 S. E. Tenth Avenue • Portland 14, Oregon

FORM 5903—30M—1059—ABBOTT, KERNS & BELL CO. PRINTED IN U. S. A.

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SOUTHWELL

TABLETS · LETTERS · NAME PLATES



THE SOUTHWELL COMPANY P. O. BOX 1136 SAN ANTONIO, TEXAS

SOUTHWELL

bronze and aluminum

tablets · letters · memorials · bas-reliefs

SINCE 1866

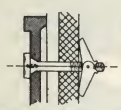
The SOUTHWELL COMPANY is one of the oldest and largest manufacturers of Marking Products in the South. You will find SOUTHWELL Plaques in practically every state in the United States as well as many foreign lands.

Whether your requirements may be for a simple plaque to mark a building or an elaborate memorial, SOUTHWELL produces only the finest. Every letter of every plaque is carefully hand chased and only virgin ingot alloys are used in their castings.

To be sure of the Quality — always specify, "Plaque by SOUTHWELL."

MOUNTING METHODS

These cross section drawings illustrate the standard fastening methods of plaques. Other mounting attachments can be furnished to meet your individual requirement.



For hollow tile or cement block: Toggle bolts with rosettes.



For brick, stone or cement: Expansion bolts with rosettes.



For concealed fastening to brick or stone: threaded bolt is screwed into back of plate. Bend bolt downward. Drill hole on angle and fill with cement.



For wood: Flat head screws, countersunk, with rosette.

NAME PLATES

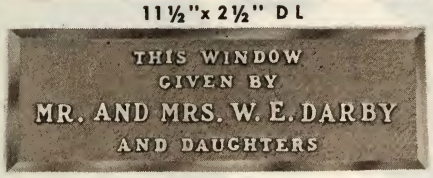
Cast bronze and aluminum name plates are the ideal method to recognize donors in church expansion programs.



10"x 2" SL



11½"x 2½" DL



12"x 4" SL or 8½"x 3½" Bevel

SPECIFICATIONS

TABLETS

(Bronze) (Aluminum) tablet shall be as manufactured by The Southwell Company, 510 North Presa Street, San Antonio, Texas. Tablet is to be cast of virgin ingots, (85-5-5-5 standard U. S. monumental bronze alloy.) — or — (F-214 aluminum alloy). Casting shall be free of all pits and gas holes and all letters shall be sharp and hand tooled.

Border and faces of raised letters are to be satin finish and background is to be stippled finish and oxidized. Two protective coatings of clear lacquer shall be sprayed on completed plaque.

Tablet is to be_____inches wide and _____ inches high with _____ _____border design. Mounting attachments for mounting tablet on _____wall shall be furnished.

Contractor will furnish Architect with rubbing of actual pattern for approval prior to casting.

LETTER STYLES

Shown below are samples of most commonly used stock tablet letters. Special designed letters for building plaques are available at an additional charge.



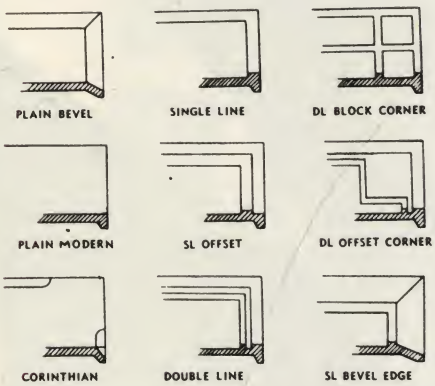
SIZES

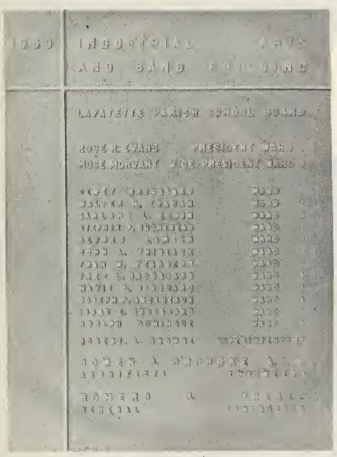
Listed below are our most popular stock pattern sizes. These sizes cover a wide variety of uses and should meet the need of most of your marking requirements. For fast and economical service, specify a standard size.

12 x 18	18 x 30	24 x 36
14 x 20	24 x 24	30 x 30
18 x 24	20 x 30	30 x 36
18 x 28	24 x 30	30 x 40

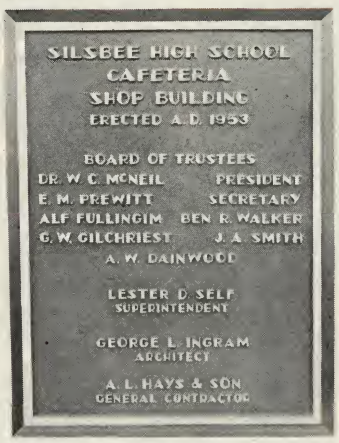
STANDARD EDGE DETAILS

Illustrated below are some of our most popular standard border designs. These may either be traced for the purpose of illustrating the design in the plans or you may specify preferred design merely by name. If none of these border designs meet your requirements, we are equipped to furnish many other standard and special designed borders.

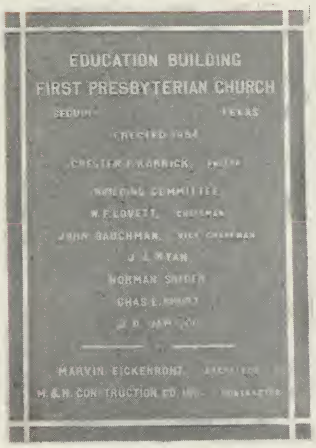




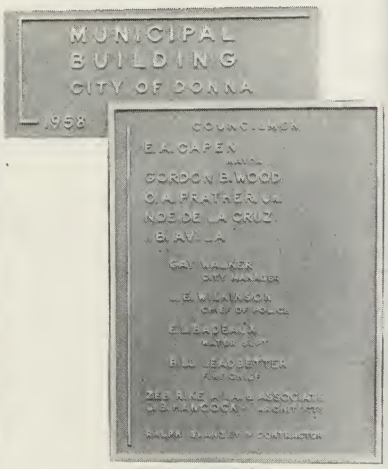
20"x30"
PLAIN MODERN — SPECIAL



18"x 24"
SL BEVEL EDGE



24"x 36"
DL BLOCK CORNER



SPECIAL DESIGN
SL AND PLAIN MODERN COMBINATION

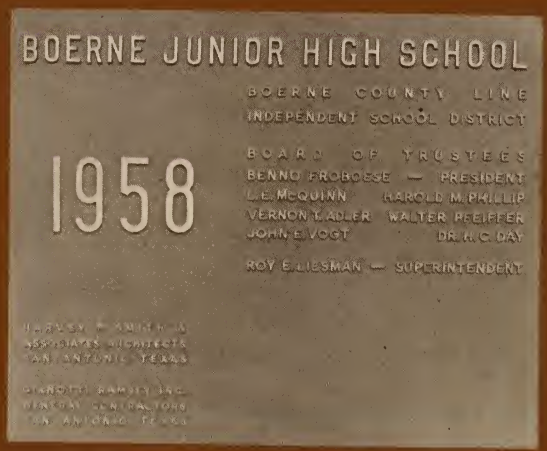
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24 "x 22" DOUBLE LINE



24 "x 18" SL GOTHIC



20" x24" PLAIN MODERN BORDER



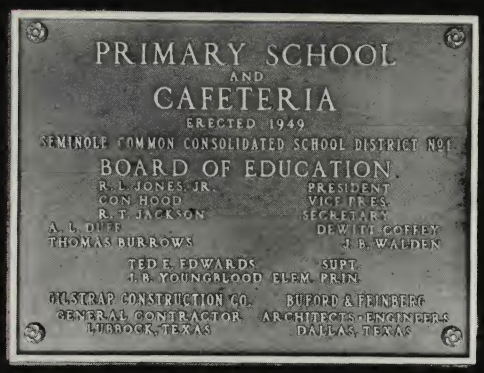
30" DIAMETER SPECIAL SCULPTURED SEAL



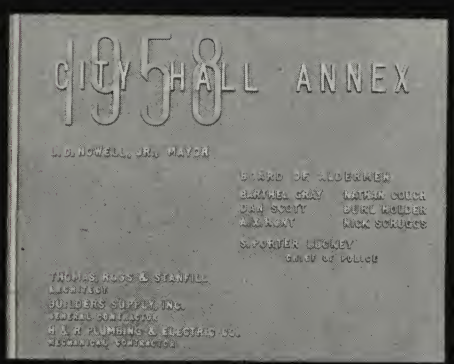
36 "x47" CORINTHIAN BORDER
NAMES CAN BE ENGRAVED ON REMOVABLE PLATES AS THE OCCASION DEMANDS



44" x21" SPECIAL DESIGN



24"x18" DL BEVEL



36"x28" PLAIN MODERN WITH DL-LEFT
NAME SUPERIMPOSED ON DATE

Engraved Plastic NAME PLATES by

STOCK SIGNS

SOUTHWELL NAME PLATES are manufactured from the highest quality laminated plastic available on precision engineered machines. All corners are square and true, the letters are perfectly aligned and the edges are beveled.

MEN	LADIES	PASTOR
OPERATING ROOM	MATERNITY WARD	JANITOR
MANAGER	INFORMATION	PRIVATE
OFFICE	PRINCIPAL	X - RAY

Hundreds of stock wordings available. These durable name plates are made of laminated black bakelite with lettering engraved into the white center core. Stock signs are 11"x1 3/4" or 8"x1 3/4" (depending on copy).

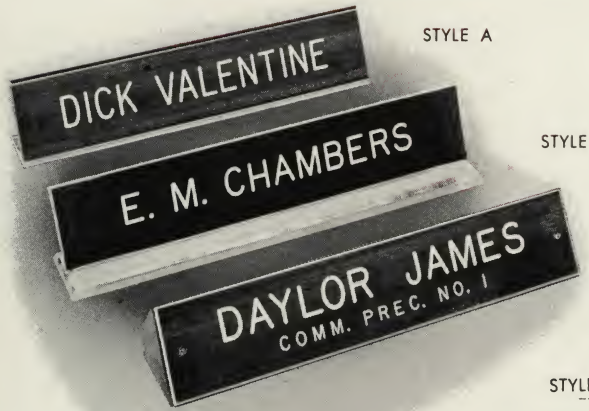
NUMBER PLATES

SOUTHWELL NUMBER PLATES are used extensively by the leading Architects in schools, hospitals, hotels, office buildings and Sunday schools. Standard sizes are 4"x2", 5"x2", 3"x3", 4"x1 1/2", 3"x1 1/4". Available in all materials. Most popular is the 4"x2" size.





DESK SIGNS



STYLE A

STYLE B

STYLE C

DESK NAME PLATES make ideal gifts for the white collar worker—and they are so reasonably priced. We offer several different stock designs and a wide selection of colors. The most appropriate size is approximately 10" by 2". Used extensively by Banks, Hospitals, Churches, Schools, Insurance Companies and other Offices.

SPECIFCATIONS

Engraved Plastic Nameplates shall be as manufactured by The Southwell Company, Box 1136, of San Antonio, Texas.
Nameplates shall be of stock size (1 3/4" by 8") (... or 11") as recommended by manufacturer and shall be _____ color.
Copy for the nameplates will be furnished by Architect (or Owner).
The manufacturer shall furnish all necessary mounting screws and all work shall be done in a first-class workmanship-like manner.

COLORS

Engraved name plates are available in the following materials at slightly higher prices than black.

Walnut	Cocoa	Blue
Mahogany	White	Green
Prima Vera	Red	Gray

Aluminum, Brass, Gold Anodized Aluminum
(Samples of material sent on request)

NAME PLATES-SIGNS

SOUTHWELL NAME PLATES are attractive and modern, yet economical. Name plates can be made to any desired size and furnished in all standard colors and materials.



Durble for indoor and outdoor signs.

MEMORIAL PLATES

Engraved aluminum or brass plates afford the most dignified and appropriate method of paying tribute to those who gave or served. Ideal for church and hospital expansion programs. They may be used to mark an individual gift or placed in a group to recognize contributions. Furnished with wood screws or adhesive back.



Illustrated above are a few of a group of 300 gold anodized engraved aluminum plates. Letters are brown filled to compliment the walnut paneled wall in a Memorial Hall. Plates are 8 1/4"x2 1/4" and are mounted with adhesive back.

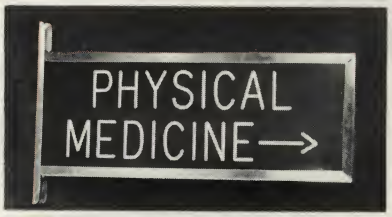
Individual engraved brass memorial plates are available in any size, however, the most popular sizes are 4"x1 3/4", 5"x2 1/2", and 6"x3 1/4".



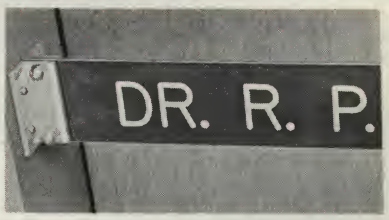
Also available in all colors of plastic.



STYLE CL—DIRECTIONAL SIGN. This is a beautiful sign that can be furnished in projected mounting or flat wall type. Frame and wall plate of clear Lucite. Name plate of engraved plastic in any desired color. Size Illustrated: 4"x16" double face, with 1 ⅛" letters.



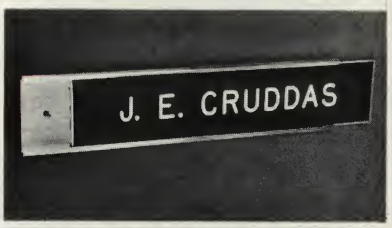
STYLE SS—Stainless steel frame for projected mounted sign with engraved bakelite inserts in double or single face. Also available in flat wall mounted signs. Size Illustrated: 16"x6" with 1¾" letters. We can furnish any size desired.



STYLE DA—Simplicity is the keynote. Any color engraved plastic nameplate can be projected mounted with satin finish extruded aluminum mounting brackets. Furnished in single or double face. Ideal for small clinics.



STYLE PR—Any size sign can be hung from this wall type mounting bracket. Signs can be furnished in single or double face. Bracket is fabricated from aluminum rod and bar stock with chain link hanging devices.



STYLE CH—Changeable Name Plate Holder for flat wall mounting. Extruded aluminum in anodized aluminum or gold finish. Sizes: 1⅝" or 2" by desired length. Size illustrated: 2" x 10" with ¾" letters.



Style JS. Made of extruded aluminum and available in polished or satin finish clear alumilite or gold anodized. Double Face or Single Face, ⅛" thick plastic plate is press fitted into slot. Available in 2", 3", 4", 6", 8", 12", and special sizes.



Many large office buildings have standardized on removable office door name plates. Those illustrated are made from alumilited aluminum with black filled letters. Name plates are 20"x2", large heading plate is 20"x6". Also available in gold anodized aluminum and all colors of plastic.

Double Face engraved aluminum name plates with black filled letters makes a dignified directory for doctors' clinics or small office buildings. Plates are 38"x4", aluminum tubes are 3"x1¾" and are set in concrete. All aluminum is alumilited.

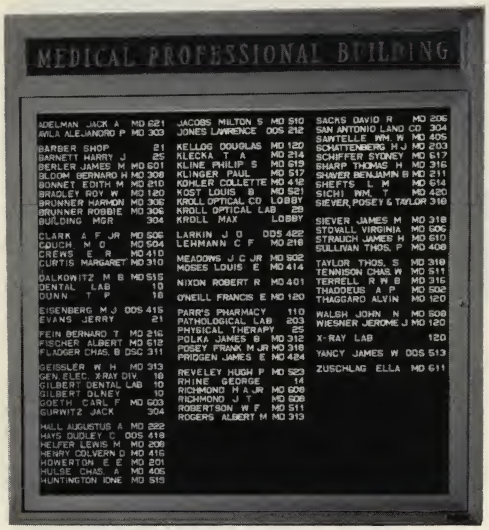


Typical installation of Style PR projected mounted signs in a hospital corridor. All signs are Double Face.



SOUTHWELL

DIRECTORY BOARDS



STYLE NO. SO-127 — Illustration is 38"x42" Furnished with or without cast heading plate. Standard sizes:

20"x24"	30"x38"
22"x26"	32"x36"
24"x28"	34"x40"
26"x36"	38"x42"
28"x32"	40"x50"

Special sizes made to meet your requirements.



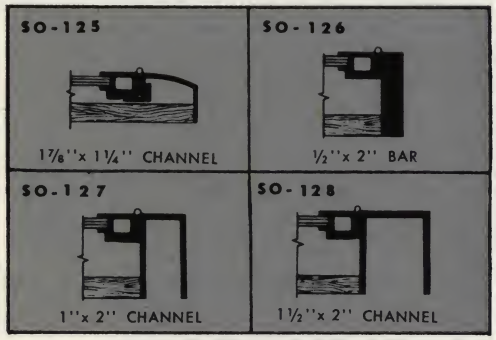
STYLE NO. SO-125 — Directory illustrated is 30"x42". Available with or without cast heading plate. Standard sizes:

20"x28"	30"x42"
24"x28"	32"x38"
22"x32"	36"x42"
24"x36"	38"x40"
28"x30"	40"x50"

Any size can be made to your individual specifications.

Southwell Directories and Bulletin Boards are made of only the finest materials available. All corners are sharp and true and all joints are accurately fitted. Directories and Bulletins can be furnished with or without glass doors. Bulletin Boards can be furnished with cork board backed up with plywood.

Frames can be made to your individual specifications. Any size available.

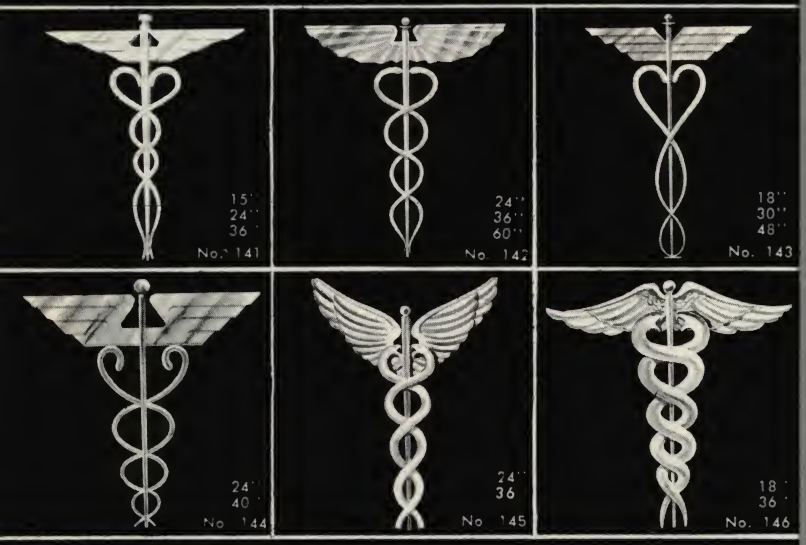


SPECIFICATIONS

Extruded Aluminum Directory Board with felt covered changeable letter background shall be as manufactured by The Southwell Company, Box 1136, of San Antonio, Texas.
Board is to be _____" wide by _____" high, Style No._____, made from 6063T5 aluminum alloy with a satin alumilited finish. The Board will be equipped with a cylinder lock and 2 keys and the door is to be hinged with a satin chrome piano hinge. Mounting attachments for fastening to a_____ wall shall be furnished.
The Directory Board manufacturer shall furnish an assortment of approximately_____white plastic letters in _____" size.

CADUCEUS

Southwell caducei, shown here, are custom designed, artistically sculptured, carefully hand tooled and chased by expert artists and craftsmen.

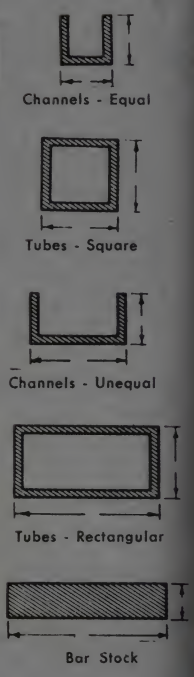


SPECIFICATIONS

Caduceus shall be as manufactured by The Southwell Company, Box 1136, San Antonio, Texas or equal.
The Caduceus shall be _____" high, Style No._____, and shall be cast of _____ (Bronze) (Aluminum) alloy using only virgin ingots. The finished product shall be expertly hand chased and highlighted.
All mounting attachments and template will be furnished by the manufacturer.

CROSSES





SPECIFICATIONS

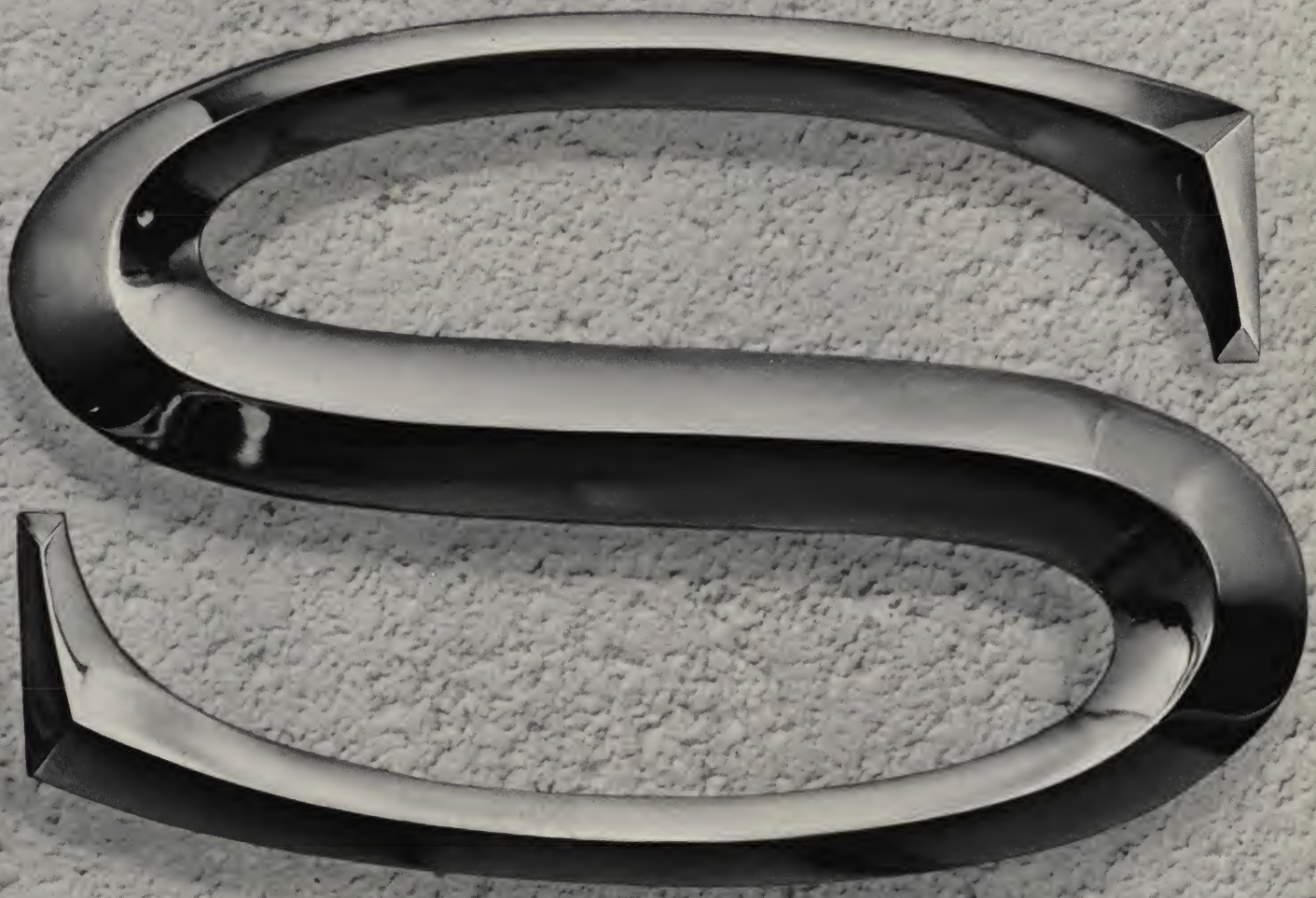
Aluminum Cross shall be as manufactured by The Southwell Company, Box 1136, of San Antonio, Texas.
Cross shall be _____" high, _____" wide, _____" deep, _____" face, and the horizontal cross arm shall be_____" from top of cross. Cross and mounting method is detailed on page_____ of the plans.
All joints shall be expertly fitted and a satin finish shall be applied to cross. Cross shall be (alumilited) (lacquered).
Manufacturer shall crate the cross in sturdy box for shipping and storing until contractor is ready to install.

Southwell Crosses can be fabricated from all standard bars, tubes, and channels as furnished by Alcoa. For further information as to sizes available, write our factory and we will offer suggestions.

THE SOUTHWELL COMPANY ... San Antonio, Texas

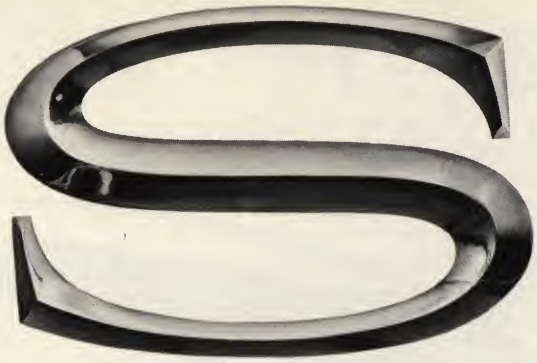
SPANJER

6f
Sp



INFINITE CARE IS TAKEN BY THE ARCHITECT TO CREATE THE PERFECT STRUCTURE. THE CHOICE OF ITS IDENTIFICATION SHOULD REFLECT THIS DEDICATION TO PERFECTION IN CRAFTSMANSHIP

SPANJER BROTHERS, INC. • CHICAGO, ILL. • PARSIPPANY, N. J.





THE PRESTIGE CRAFTED SPANJER METAL LETTERS DEPICTED AND DESCRIBED IN THESE PAGES ARE FOUND IDENTIFYING OUTSTANDING BUILDINGS AND BUSINESS INSTITUTIONS ACROSS THE COUNTRY . . . THESE LETTERS ARE DESIGNED AND PRODUCED FOR THOSE WHO CAN BE SATISFIED ONLY WITH THE FINEST OF MATERIALS AND WORKMANSHIP. FOR LASTING SATISFACTION, MAKE CERTAIN ALWAYS TO SPECIFY "SPANJER LETTERS"—THE STANDARD OF QUALITY SINCE 1896.

COPYRIGHT 1958 SPANJER BROTHERS, INC., CHICAGO

CAST LETTERS

Spanjer Cast Letters reflect the more than sixty years of letter-making experience embodied in the fine craftsmanship of every Spanjer product. Cast of the finest materials in the industry's most modern foundry, Spanjer Letters are your assurance of authentic styling and enduring quality. They are available in stock or custom designs in aluminum or bronze, either brightly polished, finished with a rich satin texture or coated with glossy baked enamel. Prompt shipment is guaranteed, and many stock patterns are available for immediate delivery.



FABRICATED LETTERS

Spanjer Fabricated Letters allow complete freedom of design to the architect. Any style in any size can be faithfully reproduced by Spanjer's skilled metal craftsmen. Economical to produce, Fabricated Letters and Designs are available in a wide variety of materials: Gleaming stainless steel, stainless steel with colorful porcelain enamel faces, rich satin finish brass or bronze, sheet steel with glossy baked enamel finish or Heliarc welded aluminum letters in either baked enamel or satin alumilite finish. Whichever you select, SPANJER is your assurance of the finest.

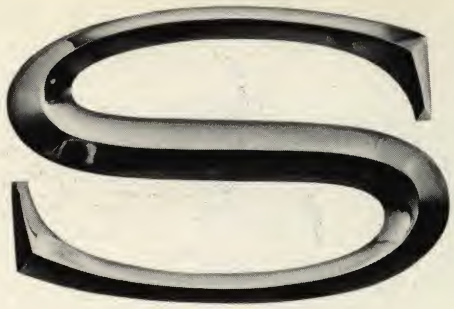


PLASTIC FACE METAL LETTERS

Spanjer Plastic Face Metal Letters have no equal where sparkling after-dark effects are just as important as compelling daytime display. Shipped ready for neon installation, Spanjer combination letters are expertly designed and manufactured to afford even light diffusion, without objectionable halo, thereby providing maximum legibility. Spanjer's master craftsmen can produce whatever effect or style you may require, whether it be a standard or special design. Here again the refined styling, excellent workmanship and finest of materials assure you of that high standard of durable quality contained in all Spanjer-built identifications.




201
FUTURA
STYLE
RE
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
101
KABEL
STYLE
RA
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
301
MARCIN
STYLE
RG
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
202
GOTHIC
STYLE
RO
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
208
BROADWAY
STYLE
RF
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
203
BETON
STYLE
RT
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
204
GARAMOND
STYLE
RS
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
104
ARCHITECTURAL
STYLE
RT
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
105
RIBBON
STYLE
RD
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
205
RIBBON
STYLE
RS
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
305
SYMMETRIC
STYLE
RE
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
315
RIBBON
CONDENSED
STYLE
RS
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z



STANDARD PATTERN CAST LETTERS

ALUMINUM AND BRONZE

Spanjer stock pattern metal letters are accepted as the standard of quality by the nation's foremost architects, designers, sign contractors and advertisers.

From the industry's largest library of stock patterns, Spanjer offers you a wide range of authentically designed popular styles of standard letters in a great variety of sizes and finishes. You will find in this section quality letters, economically priced, to serve you on almost every possible sign need.

DIMENSIONS — in inches

STYLE		Letter Height	2	3	4	5	6	8	9	10	12	14	15	18	20	24
FLAT FACE																
201	FUTURA	STROKE	7/16	5/8	13/16	1 1/16	1 1/4	1 11/16		2 1/8	2 1/2		3 3/16	3 13/16	4 1/4	5 1/8
		DEPTH	1/2	5/8	3/4	7/8	1	1 1/4		1 1/2	1 3/4		2 1/4	2 1/2	3	3
101	KABEL	STROKE	1/4	1/2	11/16	13/16	7/8	1 1/4		1 9/16	1 11/16		2	2 1/4	2 9/16	
		DEPTH	1/4	1/4	1/4	1/2	1/2	5/8		11/16	3/4		7/8	1	1 1/8	
301	MARCIN	STROKE			7/16		11/16		1		1 3/8		1 3/4			3
		DEPTH			3/8		5/8		7/8		1 1/8		1 3/8			1 3/4
202	GOTHIC	STROKE					1 1/8		1 3/8		2 1/4		2 3/4	3 1/4		4 3/8
		DEPTH					3/4		1		1 1/8		1 3/8	1 3/8		1 3/4
208	BROADWAY	STROKE		13/16–5/16			1 5/8–5/8	2 1/4–1 3/16		2 3/4–1	3 1/4–1 1/4	4 1/2–2 1/4				
		DEPTH		5/8			3/4	7/8		1 1/8	1 1/4	2				
203	BETON	STROKE					1 3/8+1	2 1/8–1 3/16	2 3/8–1 1/4	2 3/8–1 3/8	3 1/2–1 3/4		4–2	4 3/4–2 1/2		
		DEPTH					3/8	1/2	3/4	5/8	3/4		1	1 1/4		
204	GARAMOND	STROKE	5/16–5/32	1/2–1/4	11/16–5/16	13/16–3/8	1–7/16	1 5/16–5/8		1 5/8–3/4	2–7/8		2 1/2–1 1/8	3–1 3/8		
		DEPTH	1/4	3/8	3/8	1/2	5/8	3/4		3/4	1		1 1/8	1 1/2		
PRISMATIC FACE																
104	ARCHITECTURAL	STROKE		1/2 & 1/4	5/8 & 3/8	3/4 & 7/16	7/8 & 1/2	1 1/8 & 5/8		1 3/8 & 7/8	1 1/2 & 3/4		2 3/16 & 1 5/16	2 5/8 & 1 5/16	2 5/8 & 1 3/8	2 13/16 & 1 1/8
		DEPTH		3/8	3/8	1/2	3/4	3/4		3/4	3/4		3/4	3/4	3/4	3/4
FLAT FACE RIBBON STYLE																
105	RIBBON	STROKE			1/4	1/4	5/16	3/8								
		DEPTH			3/4	3/4	3/4	1								
205	RIBBON	STROKE	1/4	5/16	3/8	7/16	7/16	1/2		5/8	3/4		7/8	7/8		
		DEPTH	3/4	1	1 1/8	1 3/8	1 1/2	1 7/8		2 1/8	2 1/2		3	3		
305	SYMMETRIC	STROKE				11/32	3/8	7/16		1/2	9/16		5/8	3/4		
		DEPTH				7/8	7/8	7/8		7/8	7/8		7/8	7/8		
315	RIBBON CONDENSED	STROKE					3/8		7/16		1/2		5/8	3/4		
		DEPTH					1 1/8		1 1/2		1 1/8		2 1/8	2 1/2		

FINISHES

SPANJER STANDARD ALUMILITE—Letters are cast in virgin No. S-214 Alcoa aluminum. The castings are filed and ground smooth to remove the sand texture after which the faces are polished and buffed to a high lustre. For greater contrast the edges are not polished but are filed and ground smooth. All surfaces are given an Alumilite finish. The use of the special No. S-214 alloy produces a bright and silvery finish which matches in brilliance the extruded aluminum trim used on modern store fronts. Spanjer Standard are the highest quality letters produced.

STANDARD SATIN ALUMILITE—Letters are the same as the SPANJER STANDARD letters described above except that the faces are satin finished instead of buffed.

BAKED ENAMEL—Letters are cast and prepared the same as the letters above. In addition they are completely finished in the best grade glossy exterior baking enamels. The three coat high temperature baking process insures positive adhesion and results in gleaming porcelain-like surfaces.

SATIN BRONZE—Letters are cast of an alloy composed of 85% copper, 5% tin, 5% lead and 5% zinc. Like the aluminum letters, they are first filed and ground smooth to remove the scale and sand texture. Then a beautiful satin finish is applied on the face with special equipment and abrasives. The edges are not polished but are filed and ground smooth. Because unprotected bronze has a tendency to rapidly oxidize and discolor, a coat of very best exterior grade lacquer is applied at the plant. To preserve this finish the letters should be cleaned within 30-day intervals and relacquered as soon as the coating shows the first sign of disintegration.

OXIDIZED BRONZE—Letters are cast of the same alloy as above. The faces are ground smooth but are not buffed. The edges are filed where needed and sand-blasted. The letters are then oxidized to a rich deep statuary color and clear lacquered to prevent staining of the finish through handling.







FABRICATED LETTERS

STAINLESS STEEL • ALUMINUM • BRONZE

Special design letters, logotypes, trademarks and large size letters can be fabricated from sheet metals at little more than stock design prices. Letters of stainless steel, alumilite aluminum or bronze, in satin finishes make very attractive architectural building identifications.

Spanjer's expert craftsmen, using the most advanced metal working equipment, faithfully produce even the most intricate designs at economical prices, allowing complete freedom of styling to architects, designers and advertisers.

CAST LETTERS— CUSTOM DESIGNS

CAST ALUMINUM • BRONZE

Special letters or logotypes add distinction to modern building identifications and help to tie in with your client's printed advertising.

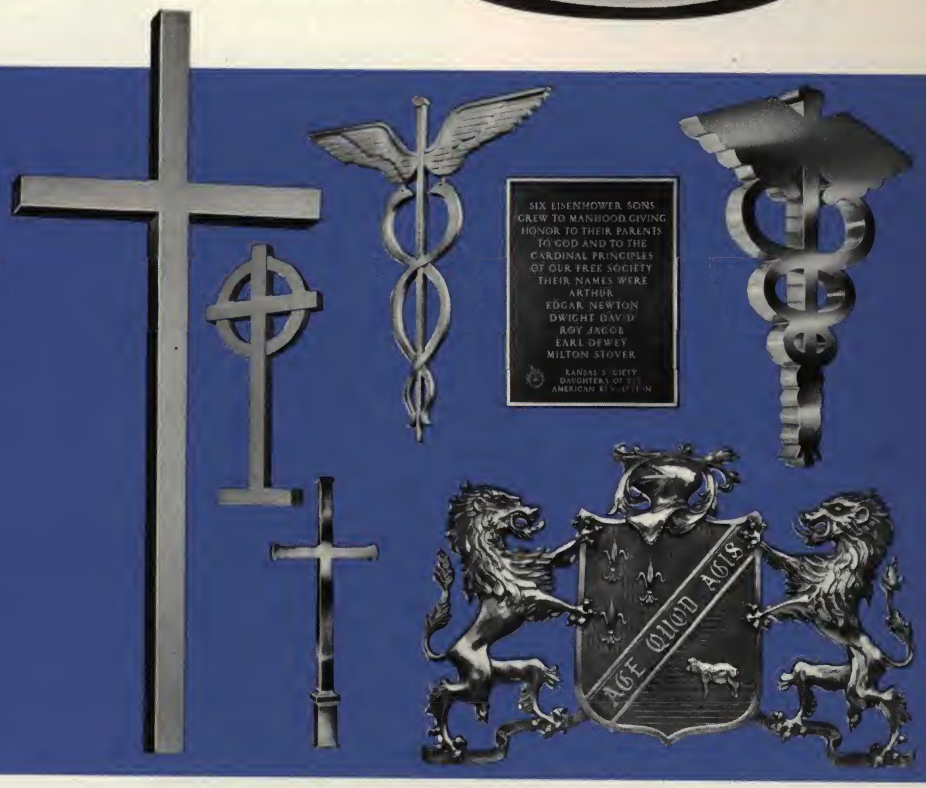
The traditions of fine letter craftsmanship, highly skilled pattern making, and modern manufacturing methods, combine to place Spanjer first in the field of custom-design cast metal letters and emblems. Employing the most up-to-date facilities and production techniques, Spanjer Brothers can assure you prompt delivery of the finest in economically priced, faithfully reproduced special letters in cast aluminum and bronze.

CROSSES • TABLETS EMBELLISHMENTS



Crosses and Caducei can be fabricated of stainless steel, aluminum or bronze sheet, or cast in aluminum or bronze—any size—any design.

Cast tablets, name plates, coats of arms, embellishments, etc. can be quickly and accurately produced in cast bronze or aluminum. The necessary special patterns can be faithfully reproduced by Spanjer's expert wood carvers and sculptors. Our scientific foundry experts can cast and finish the final piece in durable, gleaming metal.



SUGGESTED SPECIFICATIONS

FOR CAST LETTERS

All cast letters to be as manufactured by Spanjer Brothers, Inc., 1160 North Howe Street, Chicago 10, Illinois, or Halsey Road, Parsippany, New Jersey. Letters shall be_____ style; _____ inches high;_____inches in depth.

Letters shall be cast of certified #S-214 alloy aluminum using ingots only; (gates and risers prohibited) of sufficient thickness to insure rigid structure and poured at temperatures not exceeding those recommended for this alloy. The casting surface shall be free of all imperfections and only sound and advanced foundry practices employed.

Letter faces are to be ground smooth and buffed to a mirror-like finish or polished to a fine grain satin finish (specify which is desired). The edges are to be filed and ground smooth and all traces of sand texture to be removed. After thorough degreasing, alumilite finish #704 shall be applied by a licensed alumilite finisher.

Bronze letters are to have two coats of high grade clear lacquer.

Erection of letters to be done by_____ method (see fastening methods). All work to be done in accordance with specifications given in Handbook of the National Association of Architectural Metal Manufacturers.

FOR FABRICATED STAINLESS STEEL LETTERS

All fabricated letters to be as manufactured by Spanjer Brothers, Inc., 1160 North Howe Street, Chicago 10, Illinois, or Halsey Road, Parsippany, New Jersey. Letters shall be_____ style; _____ inches high;_____inches in depth.

Letters shall be fabricated from 20 gauge (or 18 gauge, depending on size of letter), 18-8 alloy, type 302 stainless steel with No. 4 finish.

All letters shall have straight edges and flat, buckle free faces with all surfaces carefully polished. All work to be done in accordance with specifications given in Handbook of the National Association of Architectural Metal Manufacturers.

FOR FABRICATED ALUMINUM LETTERS

All fabricated letters to be as manufactured by Spanjer Brothers, Inc., 1160 North Howe Street, Chicago 10, Illinois, or Halsey Road, Parsippany, New Jersey. Letters shall be_____ style; _____ inches high;_____inches in depth.

Letters shall be fabricated of .081 gauge select alloy aluminum. Faces and edges are to be joined by the heliarc process. All welds are to be carefully ground and a fine satin line finish applied to the faces. The faces and edges shall be free of distortion due to welding and free of discoloration after anodizing.

FOR COMBINATION METAL LETTERS— CHANNEL BACKS WITH PLEXIGLAS FACE— ILLUMINATED LETTERS

All fabricated letters to be as manufactured by Spanjer Brothers, Inc., 1160 North Howe Street, Chicago 10, Illinois, or Halsey Road, Parsippany, New Jersey. Letters shall be_____ style; _____ inches high;_____inches in depth.

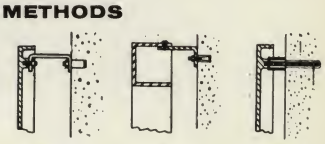
Letters shall be fabricated of stainless steel (or aluminum) in a gauge recommended by the manufacturer and shall conform accurately to the plastic letter faces. Plastic faces shall be engaged to the metal letter channel backs with alumilite aluminum retainer rings. Retainer rings to be fitted with neoprene gasketing to prevent entry of the elements. Neon tubing, transformers and erection to be as recommended by the manufacturer.

FASTENING METHODS



FM-1 FM-3 BM-4

FM-1 Flush Mounting to Masonry.
FM-3 Friction Type Mounting to Wood Backgrounds. Not accessible from the Back.
BM-4 Metal Base Mounting.



PM-6 PM-24 PM-8

PM-6 Projected Mounting to Masonry.
PM-24 Projected Mounting to Masonry for Large Letters.
PM-8 Projected Mounting to Masonry.



WOOD LETTERS

Spanjer Wood Letter Signs are being used by the nation's leading department stores for compelling directional and interior merchandising signs. Finely crafted and economically produced in Spanjer's modern woodworking shop, these wood letter signs are finding rapidly increasing acceptance for use in department identification, product promotion and directional signs.

Signs can be furnished complete, attached to panel backgrounds, or can be furnished as individual letters ready for installation at the job.

Let Spanjer Brothers' interior sign service help you with your next retail store merchandising problem.

PLASTIC LETTERS

Spanjer Plastic Face Metal Letters, brilliantly lighted as shown in the photograph at right, afford the opportunity for architects to create compelling and effective nighttime displays. Carefully designed and constructed, Spanjer Plastic Letter identifications provide maximum brightness and color, and their expertly contoured faces assure an even diffusion of light without halo or distortion. Spanjer's famous letter designers and craftsmen can furnish whatever effect or style you may require, shipped to you ready for neon installation.

Spanjer's experienced staff of designers and technicians is always available without obligation to consult with you on materials, styles, sizes and installation methods. Write us or phone us at any time for specific answers to your sign letter problems. Informative catalogs for metal, plastic and wood letters and designs are available.

SPANJER

1160 NORTH HOWE STREET, CHICAGO 10, ILL., MOhawk 4-2900 · HALSEY RD., PARSIPPANY, N. J., TUcker 7-2500

If it's a SIGN . . . We'll make it!

Write for our 100 Page Catalog

John M. Doyle, President
Charles L. Wilson, Vice Pres.
John J. Kintsch, Sales Mgr.
M. G. Jackson, Office Mgr.

SPENCER INDUSTRIES

- LETTERS
- SIGNS
- TABLETS

FABRICATED (sheet metal) LETTERS

Spencer Fabricated Letters allow complete freedom of design to the architect. Any style in any size can be faithfully reproduced by Spencer's skilled metal craftsmen. Economical to produce, Fabricated Letters and Designs are available in a wide variety of materials: Gleaming stainless steel, stainless steel with colorful porcelain enamel faces, rich satin finish brass or bronze, sheet steel with glossy baked enamel finish or Heliarc welded aluminum letters in either baked enamel or satin alumilite finish. Whichever you select, Spencer is your assurance of the finest.



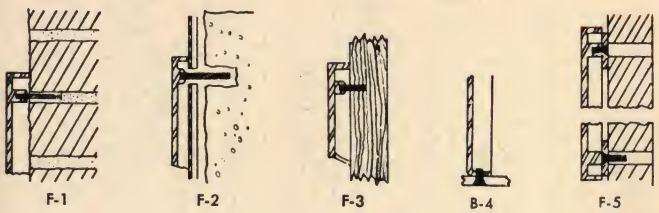


prices of any sans serif (block style) letters

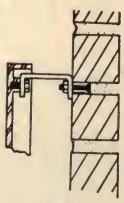
height of letters	stainless steel (20 gauge—up to 30") (18 gauge—over 30") up to 2" returns	up to 3" returns	up to 4" returns	paint-grip steel (enameled) up to 2" returns	up to 4" returns	porcelain enameled steel (16 gauge) (any one color) up to 2" returns	up to 3" returns	up to 4" returns
6"	$17.92	$20.22		$15.00		$18.45	$20.60	
8"	20.54	23.86		16.58		19.70	22.50	
10"	23.33	26.96	$31.46	18.00	$21.00	21.00	23.65	$26.80
12"	25.90	30.30	34.94	19.10	22.47	22.50	25.05	29.50
14"	29.75	32.90	37.66	21.40	25.41	24.10	26.80	31.45
16"	36.60	41.10	46.65	24.45	28.35	26.40	29.80	34.55
18"	42.80	47.35	53.50	28.90	32.37	29.80	33.70	38.50
20"	49.22	53.93	59.50	33.17	37.45	33.80	37.65	42.25
24"	58.40	64.20	70.25	38.35	42.80	43.85	48.35	53.90
28"	79.50	84.50	91.60	45.63	50.65	59.40	64.45	69.55
32"	97.90	105.50	112.35	55.00	61.80	75.00	81.30	85.60
36"	122.50	129.70	135.90	68.50	73.30	88.25	93.90	100.85
40"	137.00	149.80	160.50	74.90	81.30	101.65	108.00	117.70
44"	170.00	183.00	196.00	81.00	90.00	128.40	134.80	144.45
48"	214.00	237.00	254.00	99.50	112.00	156.00	162.65	171.20

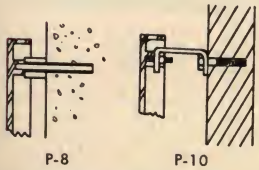
Punctuation is charged for at the lowest letter price shown. Spurred or Roman letters are 25% extra; script, 33⅓% extra; styled for neon, 40% extra. Prices in table are for letters with open backs.

fastening methods for metal letters

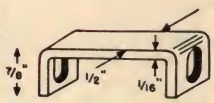


F-1 Flush mounting to masonry
F-2 Flush mounting to structural glass
F-3 Friction type mounting to wood backgrounds Not accessible from the back
B-4 Metal base mounting
F-5 Horizontal metal bar mounting to masonry
P-6 Projected mounting to masonry
P-8 Projected mounting to masonry



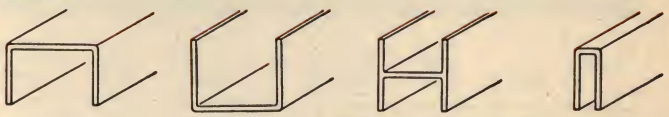


P-10 Projected mounting to marble, granite, limestone, etc.

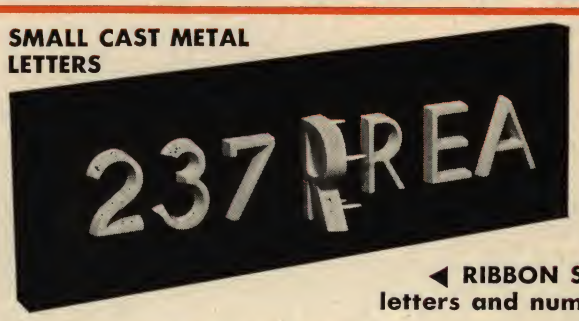


stainless steel extension irons sizes 1½", 2", 2½", 3", 4"

sections



SMALL CAST METAL LETTERS



◀ RIBBON STYLE letters and numbers

These little letters are widely used for attachment to wood doors, walls, etc. of hospitals, schools, and other public buildings.

Available in any finish—bright polished, satin, or spray painted. Usually furnished with sharp pins cast on backs of letters so they can be attached to wood without visible fastenings.

cast bronze or aluminum	size	1"	1½"	2"
	price	1.90	2.25	2.60

SPENCER INDUSTRIES INC.
1508 N. MASCHER STREET
PHILADELPHIA 22, PENNA.
TELEPHONE
GARFIELD 5-1506

SURFACE FINISHES ON CAST METAL LETTERS

ALUMINUM LETTERS:

1. "Ready to Paint" Finish—Sides and faces of letters are ground and then entire surface of letters is given a fine sandblasted finish—which gives a "tooth" for a paint or lacquer to adhere to. If desired we will spray these letters with clear lacquer —to preserve the natural "matte finish" of the aluminum.
2. "Satin Finish"—Sides and faces of letters are ground with a #60 grit—after which the entire surface is coated with clear lacquer to prevent tarnishing.
3. "Baked Enameled Finish"—Same procedure as "Satin Finish" except that letters are enameled any desired color.
4. "Alumilited Finish"—Sides of letters are filed and ground while faces of letters are emery polished or buffed. The entire letter is then "anodized" with the patented ALCOA Alumiliting process—which seals the pores of the metal and creates a hard film which protects the metal from tarnishing—if you want aluminum letters that will retain their natural finish (after exposure to outdoor weathering) for the maximum time—be sure to order letters with this ALUMILITED FINISH.

BRONZE LETTERS:

1. "Oxidized Finish"—Sides and faces of letters are filed and given a fine sandblasted finish. Entire letter is then chemically oxidized and lacquered to a dark statuary brown color.
2. "Satin Finish"—Sides of letters are ground and faces are emery polished and lacquered.

height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
1½"	1½"	3/16" x 1/8"	3/16"	10"	9½"	1 3/8" x 7/8"	3/4"
2"	2"	3/8" x 3/16"	1/4"	12"	11½"	1½" x 3/4"	3/4"
3"	3"	½" x 1/4"	3/8"	14"	13½"	1 7/8" x 1 1/16"	3/4"
4"	4"	5/8" x 3/8"	3/8"	16"	15"	2 1/4" x 1 3/8"	3/4"
5"	4½"	3/4" x 7/16"	½"	18"	17"	2 5/8" x 1 3/8"	3/4"
6"	5½"	7/8" x ½"	3/4"	20"	18"	2 5/8" x 1 3/8"	3/4"
8"	7½"	1 1/8" x 5/8"	3/4"	24"	21"	2 13/16" x 1 1/8"	3/4"

ARCHITECTURAL STYLE No. 280



PRISMATIC FACED

CONDENSED GOTHIC STYLE No. 255

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
2"	1 1/4"	3/8"	3/8"	9"	6"	1 5/8"	1"
3"	2 1/4"	9/16"	5/8"	10"	6 3/4"	1 3/4"	1"
4"	3"	13/16"	3/4"	12"	8"	2 1/4"	1 1/4"
5"	3½"	7/8"	½"	15"	10"	2 3/4"	1 3/8"
6"	4"	1 1/8"	3/4"	18"	12"	3 1/4"	1 3/8"
8"	5 1/4"	1 1/4"	7/8"	24"	16"	4 3/4"	1 3/4"

BROADWAY STYLE No. 270

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
3"	2½"	13/16" x 3/8"	1/4"	10"	9"	2 3/4" x 1"	1 1/8"
4"	3"	1" x ½"	1/4"	12"	12"	2 3/4" x 3/4"	1/4"
6"	5½"	1 3/4" x 3/4"	1/4"	12"	12"	2 3/4" x 3/4"	3/4"
6"	5"	1 5/8" x 5/8"	9/16"	12"	10"	3 1/4" x 1 1/4"	1 1/4"
8"	7"	2 1/16" x 3/4"	1/4"	14"	12"	4" x 2"	1/4"
8"	7"	2 1/16" x 3/4"	5/8"	14"	11½"	4" x 2"	3/4"
8"	7"	2 1/4" x 13/16"	7/8"	16"	13"	3 3/8" x 1 1/4"	1"
10"	9"	2 5/16" x 9/16"	1/4"	18"	16"	3½" x 1 3/4"	1"
10"	10"	2 5/16" x 1 1/4"	3/4"	20"	16½"	3 3/4" x 1 3/4"	1½"

EGYPTIAN STYLE No. 265

ABCDEFGHIJKLMN
OPQRSTUVWXYZ

height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
1½"	1"	3/8"	3/8"	12"	9"	2"	2"
2"	1½"	½"	½"	14"	10"	2 5/16"	2 5/16"
3"	2"	5/8"	3/4"	15"	11"	2½"	2½"
4"	3"	5/8"	7/8"	16"	12"	2 5/8"	2 5/8"
6"	4½"	1"	1"	18"	15"	3"	3"
8"	6"	1 5/16"	1 5/16"				
10"	7½"	1 5/8"	1 5/8"				

GARAMOND STYLE No. 290

ABCDEFGHIJKLM
NOPQRSTUVWXYZ

height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
2"	1 3/4"	5/16" x 5/32"	1/4"	10"	8 1/4"	1 5/8" x 3/4"	3/4"
3"	2½"	½" x 1/4"	3/8"	12"	10"	2" x 7/8"	1"
4"	3 3/4"	11/16" x 5/16"	3/8"	15"	12½"	2½" x 1 1/8"	1 1/8"
5"	4 1/8"	13/16" x 3/8"	½"	18"	15"	3" x 1 3/8"	1½"
6"	5"	1" x 7/16"	5/8"	20"	16½"	3 3/8" x 1½"	1½"
8"	6 5/8"	1 5/16" x 5/8"	3/4"	24"	20"	4" x 1 3/4"	1 3/4"

CAST METAL LETTERS
made from stock alphabet patterns



"WONDERBAR" enables you to attach an entire line of lettering to any surface just as easily as you could erect a single letter. These attractive RIBBON STYLE letters are integrally cast in ONE PIECE with the bars underneath them—as illustrated.

Bars underneath the letters are colored the same as the sides of the letters—with the faces of the letters brightly satin finished and lacquered. These "Wonderbars" are ideal for professional men's name plates, directional and door signs.

cost of "WONDERBAR" letters—mounted on base bars

height of letters	width of letter strokes	depth of letters	CAST ALUMINUM		CAST BRONZE	
			satin finished and lacquered	alumilited or with colored enamel on sides of letters	satin faces dark statuary sides	satin faces colored sides
1¼"	⅛"	⅜"	$3.30	$ 3.60	$ 3.60	$ 3.90
1½"	5/32"	⅜"	3.90	4.20	4.30	4.60
2"	3/16"	⅜"	5.25	5.55	5.90	6.20
2½"	3/16"	⅜"	6.15	6.45	7.00	7.40
3"	7/32"	⅜"	7.05	7.35	8.25	8.60
4"	⅛"	⅜"	9.90	10.25	11.70	12.00

ROMAN or BLOCK STYLE



Block

¼" thick individual cast letters



Roman

prices per letter

height of letters in inches	CAST ALUMINUM			CAST BRONZE		
	ready to paint	satin or lacquered any color	alumilited (anodized) finish	oxidized or lacquered	satin polished finish	porcel bronze vitreous enameled
1"	$1.18	$1.34	$1.66	$1.30	$1.50	$2.03
1½"	1.27	1.45	1.82	1.60	1.80	2.57
2"	1.45	1.71	2.03	1.90	2.20	3.42
2½"	1.71	2.15	2.80	2.62	2.90	3.87
3"	1.98	2.89	3.44	3.00	3.50	4.81
3½"	2.13	3.20	3.85	3.50	4.00	5.56
4"	2.62	3.55	4.44	4.20	4.80	6.31
5"	3.04	4.17	5.03	5.10	6.20	8.50
6"	3.64	4.76	5.56	6.40	7.80	11.25
8"	4.71	6.00	7.50	9.50	11.50	15.50
10"	7.00	9.70	12.00	13.25	15.50	23.50
12"	10.00	12.30	15.50	16.00	18.50	30.00
14"	12.30	14.45	17.65	21.00	24.00	
16"	14.45	16.70	21.00	26.50	32.00	
18"	16.50	20.85	24.60	33.00	39.00	
20"	20.00	26.20	31.56	38.00	45.00	
24"	30.00	38.50	48.00	55.00	64.00	

RIBBON STYLE No. 106



height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
1"	¾"	3/32"	¼"	6"	4"	7/16"	1½"
1½"	1"	⅛"	5/16"	8"	5"	5/16"	⅞"
2"	1⅜"	3/16"	⅜"	8"	5"	½"	1⅞"
2"	1½"	¼"	¾"	8"	5"	⅝"	1"
2½"	1⅝"	3/16"	⅝"	9"	6"	⅜"	⅞"
3"	2"	¼"	¾"	10"	7"	⅜"	1"
3"	2"	5/16"	1"	10"	7"	½"	2⅛"
4"	2¾"	¼"	¾"	12"	8"	⅜"	1"
4"	2¾"	⅜"	1⅛"	12"	8"	⅝"	2¼"
5"	3½"	¼"	¾"	14"	10"	⅜"	1"
5"	3½"	7/16"	1⅜"	15"	10"	¾"	2¾"
5"	3½"	⅜"	1"	18"	12"	¾"	3"
6"	4"	⅜"	1"	20"	13"	⅜"	2½"
6"	4"	¼"	¾"	24"	16"	⅜"	2½"

HUXLEY STYLE No. 109



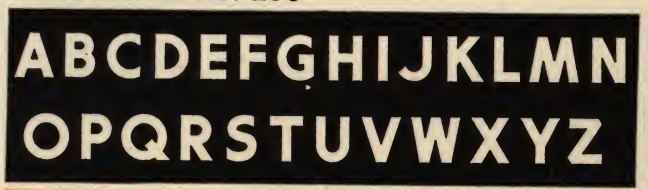
height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
2"	1"	¼"	7/16"	8"	4"	5/16"	¾"
3"	1½"	¼"	¾"	10"	5"	⅜"	1"
4"	2"	¼"	¾"	10"	5"	½"	2"
5"	2½"	¼"	¾"	12"	6"	⅜"	1⅛"
6"	3"	¼"	¾"	12"	6"	½"	2"
6"	2¼"	⅜"	2"	14"	7"	½"	2"
6"	3"	⅜"	1½"	15"	5"	½"	2"
8"	4"	½"	1½"				

KABEL STYLE No. 260



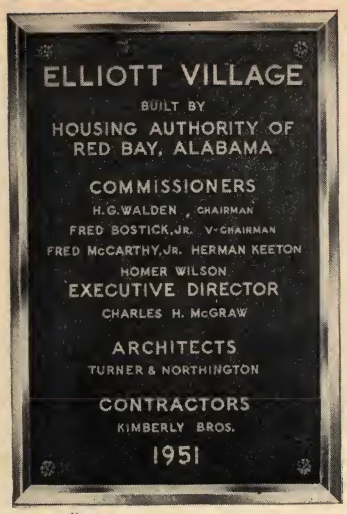
height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
2"	1½"	¼"	¼"	10"	7"	1 9/16"	1 1/16"
3"	2"	½"	¼"	12"	8"	1 11/16"	¾"
4"	2¾"	1 1/16"	¼"	14"	9"	1⅞"	¾"
4"	2¾"	1 1/16"	½"	15"	10"	2"	⅞"
5"	3½"	1 3/16"	½"	16"	11"	2 1/16"	⅞"
6"	4"	1"	½"	18"	12"	2¼"	1"
8"	5½"	1¼"	¼"	20"	13"	2 5/16"	1⅛"
8"	5"	1¼"	⅝"	24"	16"	3⅜"	1¼"

FUTURA STYLE No. 250



height	average width	width of letter strokes	depth or returns	height	average width	width of letter strokes	depth or returns
2"	1 5/8"	7/16"	½"	12"	9¾"	2½"	1¾"
3"	2½"	⅝"	⅝"	12"	10"	2"	2"
4"	3¼"	¾"	¾"	14"	11½"	2"	2"
5"	4"	1"	⅞"	15"	12"	3 3/16"	2¼"
6"	5"	1¼"	1"	16"	13¼"	2½"	2⅛"
8"	6½"	1¾"	1¼"	18"	15"	3¾"	2½"
8"	5½"	1½"	2½"	20"	16½"	4¼"	3"
10"	8¼"	2⅛"	1½"	24"	19½"	5⅛"	3"
10"	7"	1"	2"	24"	19½"	4"	3"

BRONZE OR ALUMINUM TABLETS



Model #140

Standard "PWA Style" border design and Block Style pattern letters. Widely used as dedication plaques. Tablet above: 20"x30" over-all $330. Other sizes (average inscription) about 55c per square in. of over-all area.

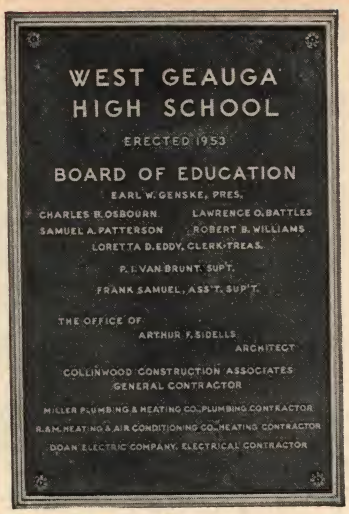


Model #109

Delicately sculptured "Laurel Leaf" border, frames this beautiful tablet.

standard sizes

10" x 20½"	$134.00	20" x 30"	$396.00
12" x 18"	142.00	26" x 30"	511.00
16" x 24"	253.00	26½" x 36"	620.00
18" x 24"	285.00		



Model #100

Standard Block style (above) or Roman Style pattern letters. O.G. section moulding around the edges (¾" wide) is close grained extruded metal—smoother and more attractive than cast metal mouldings. Average cost: from 44c to 60c per sq. in.



Model #138 →

CAST BRONZE OR ALUMINUM PLAQUES

"Truly Modern Tablets" can now be made using our new RIBBON STYLE pattern letters—as illustrated. We have made patterns for letters from ¼" to 2" in height. Specify this style on your next job.

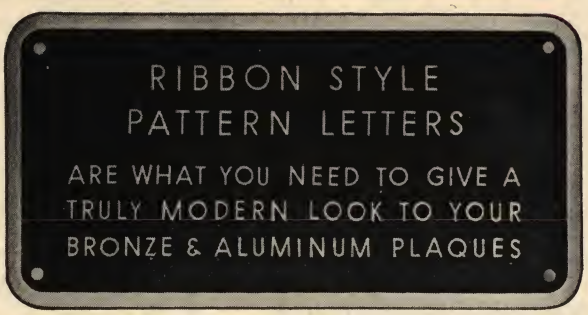
←

Model #137

ENGRAVED STAINLESS STEEL PLAQUE

Illustration shows a Stainless Steel Plaque (with our extruded O.G. shaped alumilited aluminum moulding around the edges) that is engraved with our standard Block Style lettering.

We can engrave similar plaques in almost any size—using our standard Block, Gothic or Roman style lettering—on stainless steel, aluminum, brass or bronze plates.





STYLE #26

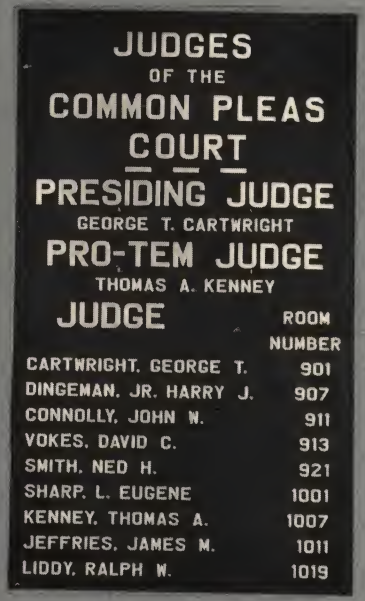
Cast Aluminum with Gold Leafed Lettering

standard letter styles of pattern letters for metal plaques

CLASSIC ROMAN	MODERN BLOCK	CONDENSED TABLET	CONDENSED BLOCK
RIBBON	RUNIC	BROADWAY	upper & lower case Roman



Custom Directional Sign at Detroit's Metropolitan Beach. O'Dell, Hewlett & Luckenbach, Architects.



Custom Directory with interchangeable names in Detroit County Building. Harley, Ellington & Day, Architects



Typical Stock Sign Application, Marsh Elementary School. Cornelius L. T. Gabler, Architect.

an architectural guide to stock and custom identification by

SUPERSINES

- Manufacturers of SUPERSINES, the distinctive satin finish alumilited aluminum signs, with lifetime lustre raised letters and borders.
- Designers of custom identification and directional systems utilizing all materials consistent with sign manufacturing.
- Distributors of architecturally designed metal letters and plaques.

AIA FILE No. 13-K-1

THE SUPERSINE COMPANY

17125 VAN DYKE AVE.
DETROIT 34, MICHIGAN

DISTRIBUTORS IN

TORONTO, CANADA
LONDON, ENGLAND
EDMONTON, CANADA
OAKLAND, CALIFORNIA
SYRACUSE, N. Y.
WEST COLUMBIA, S. C.
HONOLULU, HAWAII
CHICAGO, ILL.

STOCK SIGNS:

SUPERSINE Stock Signs are available with either a ⅞", 1¼" and 1¾" Gothic style letter. Over 1,000 Stock Legends are now available and new legends are being added constantly. Stock Signs are available in Satin or Gold Alumilite with Black, White, Red, Maroon, Blue, Brown or Green Baked Wrinx enamel. Stock Signs are furnished with Aluminum Wood Screws, Sheet Metal Screws, Cadmium Plated Non-removable Clutch Head Screws or SUPERSINE Sticky-back Adhesive. Stock signs are available with or without borders. Stock signs are normally furnished with 2 drilled holes, however they may be equipped with any of the mountings listed on page 4.

SUPERSINES are gaining very wide acceptance among the architectural trade for Schools, Institutions, and Office Buildings. Under normal conditions SUPERSINES can be supplied for about the same price as a painted letter. Added economy is also gained by the fact that SUPERSINES require no maintenance.

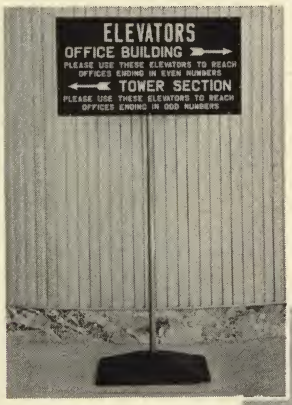
CUSTOM SIGNS

Custom SUPERSINES are available in any size up to 72" by 24". Gothic style letters and numerals are available in ⅝", ⅞", 1¼", 1¾", 3", and 3½" sizes. Gothic style numerals are also available in 2¼" size. Custom SUPERSINES are available in any of the finishes and with any of the mountings listed on page 4. Also Special Mountings where Required.

The over-all size of any Custom sign may be determined by use of the SUPERSINE calculation chart at bottom of page.

Special alphabets may also be duplicated by the SUPERSINE process. With our experienced die making department we are able to duplicate any style of letter that may be necessary for various special projects. Please do not hesitate to write us concerning your lettering problems.

SUPERSINES are NATURE-PROOFED. There is never any need to polish or re-finish a SUPERSINE and an occasional dusting or soap and water bath will keep them bright for many years. Surprisingly enough SUPERSINES cost only a fraction of the price of other quality signs and plaques.



Custom plaque mounted on stainless steel rod and cast iron base. Base has been finished in black wrinx enamel. Please contact us on any special mounting problems you have.



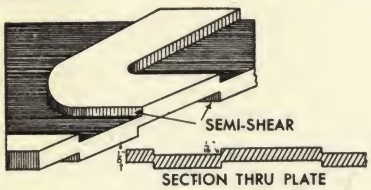
One of our many traffic directional signs. One-way, two-way, and four-way street name signs are also available complete with all hardware.



A selection of typical stock signs showing ⅞", 1¼" and 1¾" stock signs.

CONSTRUCTION

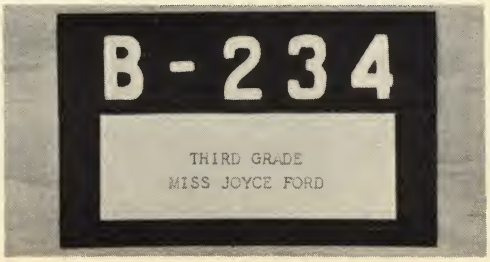
SUPERSINES are fabricated from .102", HS-13 aluminum alloy. This stock is bright dipped and alumilited before fabrication. The characters and borders are formed by a male and female die. The process employed is a combination semi-shear and extrusion. All characters are raised evenly with perfectly vertical and well defined edges, and the surface of each is flat and smooth.



FINISH:

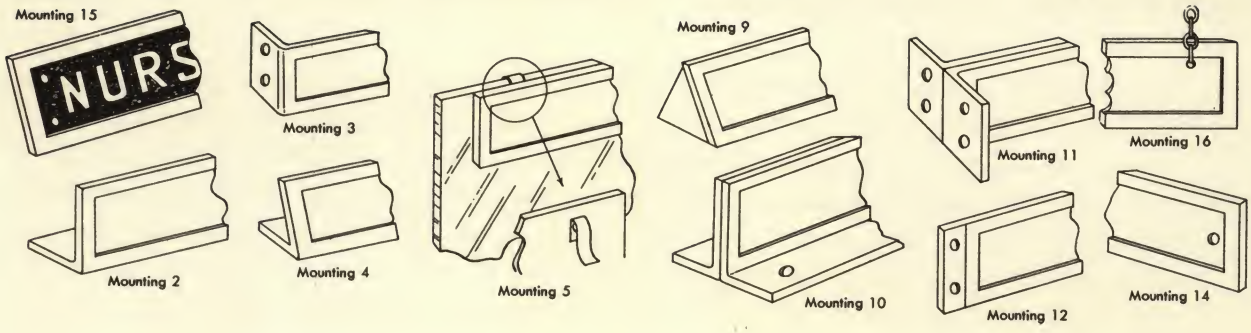
SUPERSINES are available with Satin, Gold, Red, Blue, Green and Black Anodized Characters and Borders. Once the SUPERSINE plate has been pressed, the background is then finished with a infra-red baked enamel. Our standard enamels, which are used exclusively on stock signs, are of the Wrinx type and are available in White, Black, Red, Maroon, Blue, Brown, and Green. Custom SUPERSINES may also be finished with an extremely hard Stove enamel, which is very similar in appearance to porcelain. When this finish is applied it is also possible to paint the characters and border a contrasting color. Stove enamel is available in all standard colors.

All enamels applied to SUPERSINES are guaranteed not to chip or peel. Only Red, Maroon, and Brown shades are subject to excessive fading when placed in extreme weather conditions.



Room number plate with extruded slot to accommodate card. Available with ⅝" or ⅞" characters.

MOUNTINGS AVAILABLE



SPECIFICATIONS

GENERAL: SUPERSINES are raised letter aluminum signs fabricated from .102 Alumilited Aluminum. Sign backgrounds are finished in infra-red baked enamels. Choice of color as selected by Architect from group of Manufacturers standard colors.

APPROXIMATE REQUIREMENTS METHOD: The Contractor shall furnish SUPERSINES in the following approximate quantities:
(a) All doors facing corridors___, and___, shall have Number plates, (or Name Plates or Both), and the bid shall be based on___Letters or Digits per Sign. All lettering shall be___in height. Signs shall be furnished with No.____Mounting.
(b)____of the signs in this category shall be double-faced and shall be equipped with No.____Mounting.

ALLOWANCE METHOD: There shall be an allowance of $____in the contractors bid for purchasing SUPERSINE room number and indentification plates as manufactured by THE SUPERSINE COMPANY or equal as approved by the Architect.

EXACT REQUIREMENTS METHOD: The contractor shall furnish the following listed SUPERSINES as manufactured by THE SUPERSINE COMPANY or equal as approved by the Architect. All signs to be finished with a____color background and mounting No.____

INSTALLATION: The Contractor shall install SUPERSINES using Aluminum Round Head Wood Screws, Nickle Plated Round Head Sheet Metal Screws, Black Oval-head and countersunk Wood Screws, or Cadmium Plated Non-Removable Clutch Head Screws. The Hardware to be supplied by THE SUPERSINE COMPANY at no added cost to the contractor.

THIS FOLDER SHOWS ONLY A FEW OF THE MANY SUPERSINE APPLICATIONS. PLEASE WRITE FOR OUR CATALOG WITH A COMPLETE LISTING OF 1,084 STOCK LEGENDS. SAMPLE SIGNS WILL ALSO BE FURNISHED ON REQUEST.



Individual Supersine nameplates with 7/8" letters serve as outdoor directory.



Supersines guide the public through the new Detroit City-County Building.
Harley, Ellington & Day, Architects

CUSTOM DESIGNED IDENTIFICATION AND DIRECTIONAL SYSTEMS

As an added service to the architects, THE SUPERSINE COMPANY has added a design department which specializes in the design of identification and directional systems. With the complex floor plans of modern architecture, adequate direction and identification becomes a more and more important item. It is our intent to help the architect with this phase of his project so that he may devote his time to other more pressing needs. We have built up a great deal of experience in this field on a variety of projects and we are constantly trying to improve our products and services by the use of new and unique materials and designs.

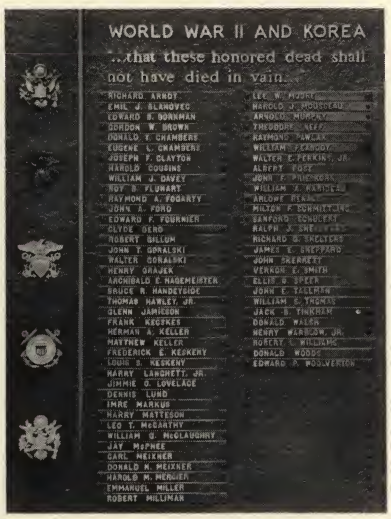
The pictures shown below are from some of our more recent projects.



The main directory of the New Flint Public Library, S. A. Nurmi & Assoc., Inc., Architects. A combination of color, shape and symbols is used to direct the public.



A wall symbol placed at the entrance to one of the library departments duplicates the corresponding symbol on the main directory.



A custom-designed war memorial plaque at the Wayne, Michigan Library, Jahr-Anderson-Machida Associates, Architects. All service emblems are done in their traditional colors against an oxidized bonze background with raised polished letters.



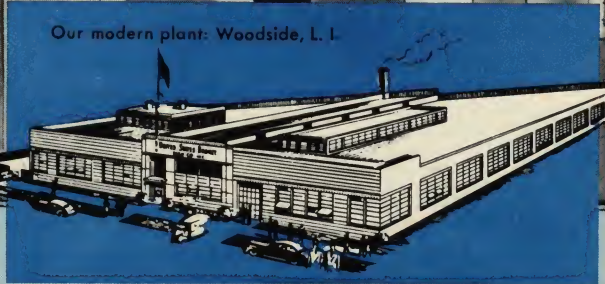
Custom designed exterior identification for Beth Abraham Synagogue. The Luchos Debros Tablet of the laws is polished red granite with cast bronze and gold plated Hebrew characters mounted on the face. The letters below are square cut into limestone and colored to provide contrast.

THE SUPERSINE COMPANY
17125 VAN DYKE AVE. • DETROIT 34, MICHIGAN
DISTRIBUTORS IN
CHICAGO, OAKLAND, CALIF., SYRACUSE, N.Y., W. COLUMBIA, S. C., HONOLULU, HAWAII, LONDON, ENG., EDMONTON, CAN. AND TORONTO, CAN.
REPRESENTATIVES THROUGHOUT THE UNITED STATES. WRITE, WIRE OR PHONE FOR ADDRESSES OF REPRESENTATIVE NEAREST YOU.

UNITED STATES BRONZE SIGN CO., INC.

- Bronze
- Aluminum
- Stainless Steel
- Porcelain
- Nickel Silver
- Galvaneal

PLAQUES AND LETTERS FOR BUILDING FACADES



UNITED STATES BRONZE SIGN CO., INC. • 101 W. 31st St., Dep't S, New York 1, N. Y.

TABLETS



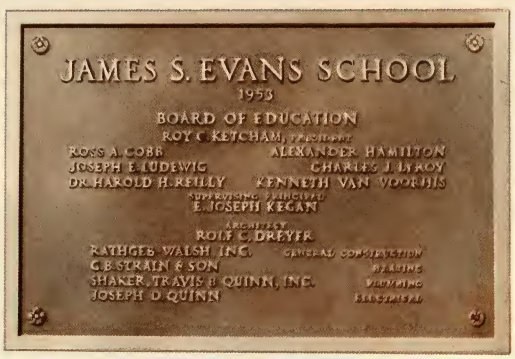
All tablets illustrated can be furnished in cast bronze, cast aluminum, or cast nickel silver.

For over 30 years, United States Bronze has been furnishing tablets for architects throughout the country. Sharp precision castings are made in our own foundry and then carefully handtooled to assure your complete satisfaction.

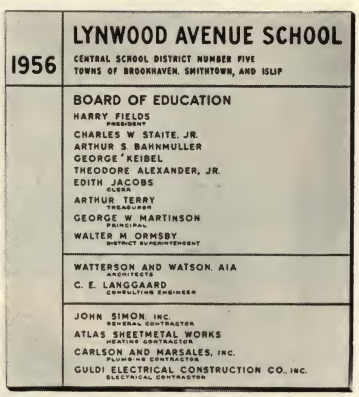
May we quote you on your tablet requirements and assist in preparing your specifications? Our art department will gladly submit drawings for your approval, without cost or obligation.



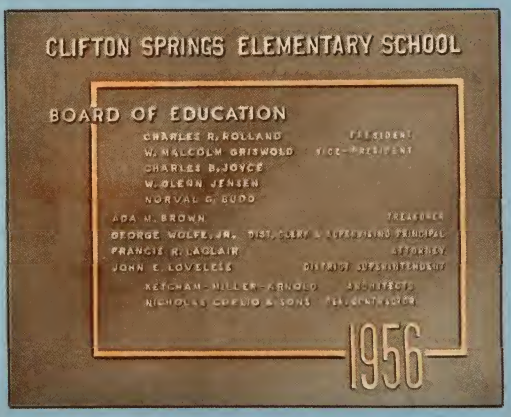
S-201—Official post office design cast in either bronze or aluminum. Raised double-line border. Modern block letter style.



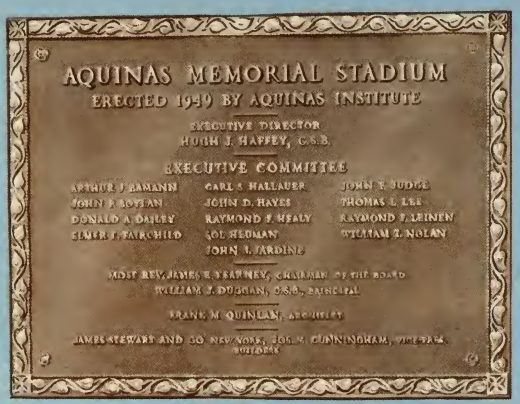
S-202—Cast bronze tablet with classic Roman letters and raised flat band border. Ornamental rosettes cover screwheads.



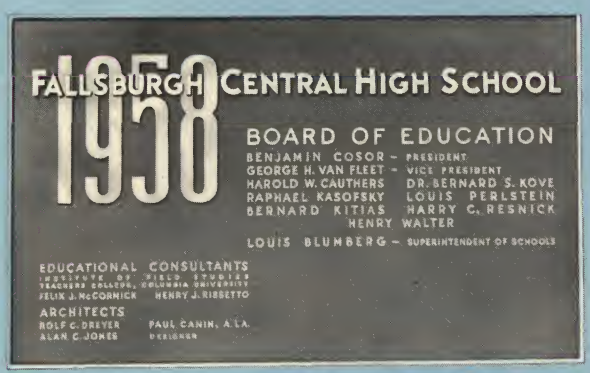
S-203—¼-inch thick satin aluminum background engraved with smart block-style letters. Lettering filled with baked enamel in any color desired. Also available in bronze in any size.



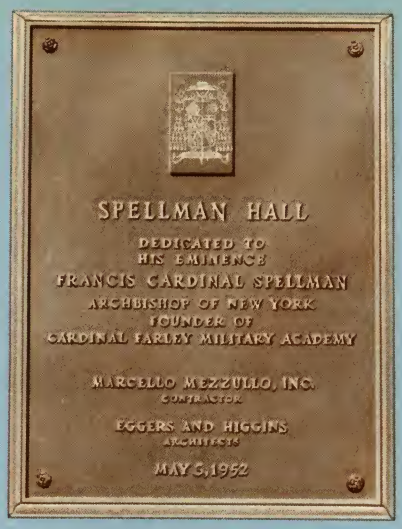
S-204—Contemporary Style Tablet without border — Available in all sizes in bronze & aluminum.



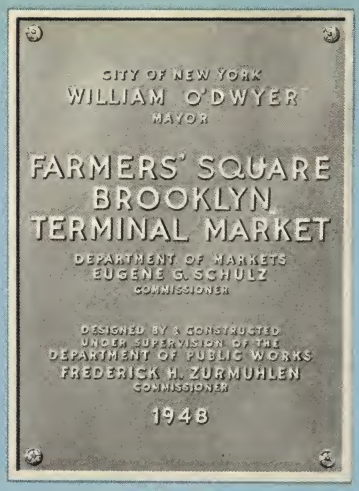
S-205—Modeled vine leaf and bead border design, with classic Roman letters.



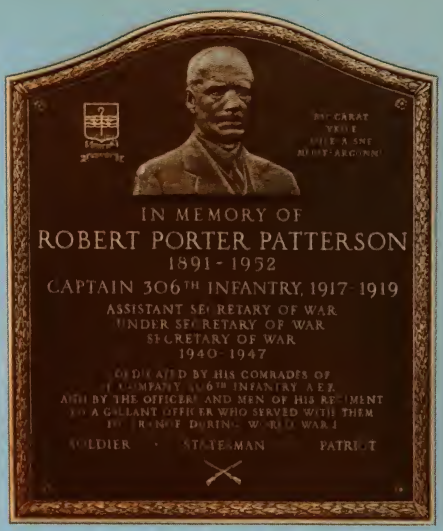
S-214—Contemporary design cast aluminum tablet with raised flat band border. Name of school in higher relief than other letters.



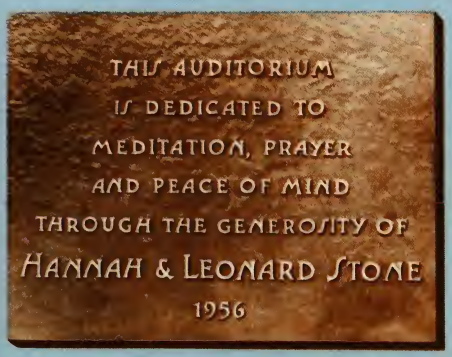
S-209—Reverse ogee border combined with architectural round-faced letters and sculptured Cardinal seal.



S-207—Cast aluminum tablet with modern block letters and flat band border.



S-212—Arched top laurel leaf border design with sculptured portrait. Available in all sizes.



S-208—Hand sculptured design. Entire tablet modeled including lettering. No limitations as to letter style, metal, size, or design.

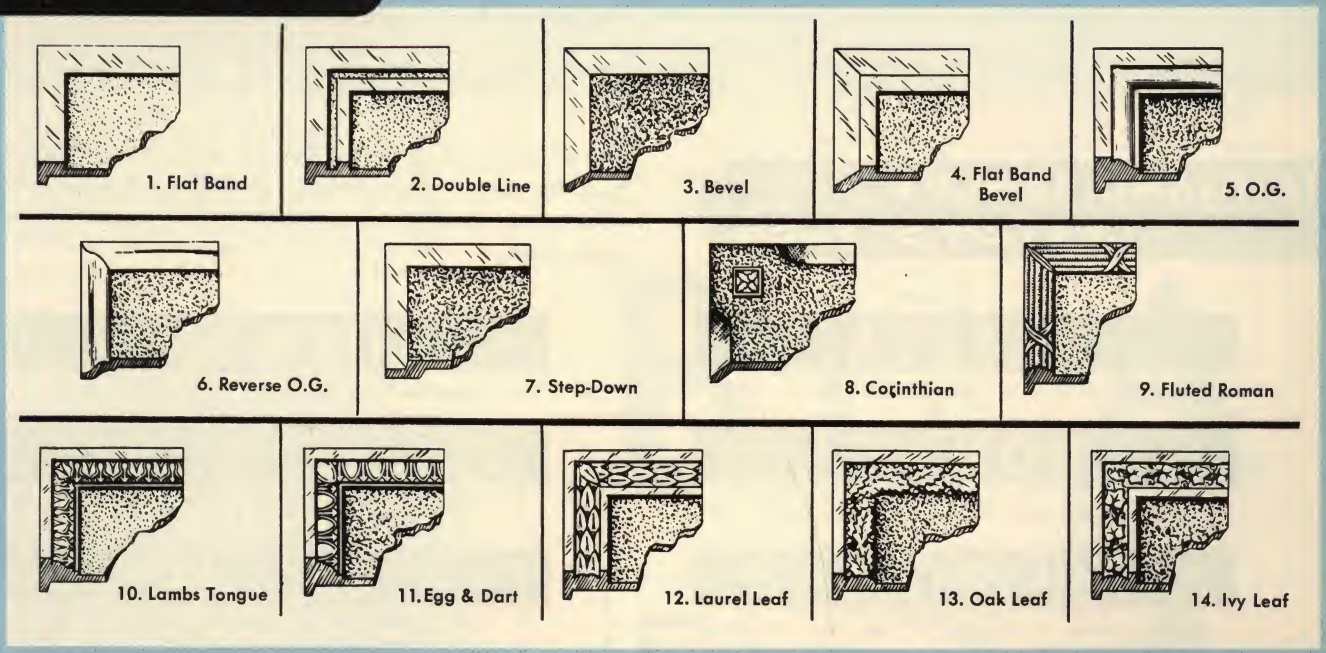


S-211—Hand sculptured vitreous enamel filled seals in all sizes.



S-213—Dignified bronze bank sign with wide bevelled border and Roman letters.

BORDERS



INSTALLATIONS

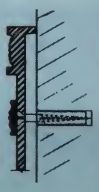
United States Bronze Sign Co., Inc.
101 W. 31st St., New York 1, N. Y.



15. Screws and rosettes used for installations on wood.



16. Concealed method of fastening consisting of threaded rods on back of tablet into cement filled holes.



17. Wood screws set into lead anchors of rawl plugs. Ornamental rosettes cover head of screw.

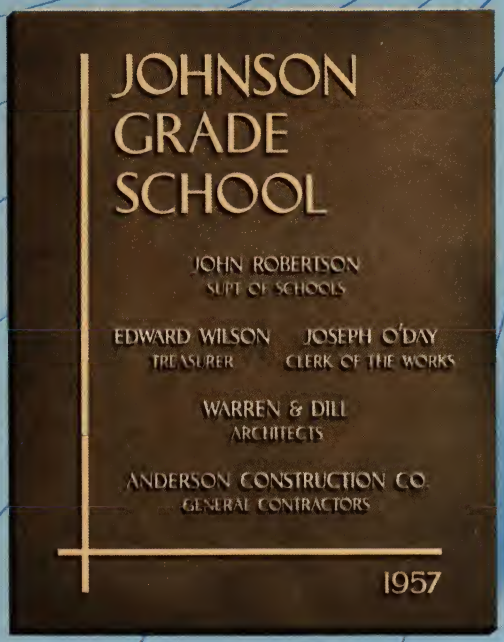


18. Toggle bolts for hollow tile and similar conditions.

FASCIA-A NEW TABLET LETTER

Created especially to blend with the modern appeal of today's architectural designs, this new style tablet letter which we call *Fascia*, pleases the most discriminating taste.

Fascia reflects the thinking of architects throughout the nation. It expresses grace and dignity, combining the crisp feeling of block style with a suggestion of a delicate and graceful serif.



SPECIFY FASCIA STYLE

ABCDEFG
HIJKLMN
OPQRST
UVWXYZ

STANDARD TABLET LETTER STYLES

Most of the styles illustrated below are available in sizes from ¼" up, to be cast as an integral part of tablets in bronze, aluminum, or nickel silver. Specify, for example: United States Bronze "Fascia" Tablet Letter.

FASCIA

H. Fascia sizes ⅜", ½", ¾", 1", 1½", 1¾".

ROMAN

A. Roman sizes ¼", ⅜", ½", ⅝", ¾", ⅞", 1", 1¼", 1½", 1¾", 2".

OVAL ROMAN

F. Oval Roman Face sizes ¼", 5/16", ⅜", ½", ⅝", ¾", 1", 1¼", 1½".

OVAL BLOCK

J. Oval Block sizes ⅜", ½", ⅝", ¾", 1", 1½".

UNCIAL

G. Uncial sizes ⅜", ½", ¾", 1", 1¼", 1½", 2".

THIN BLOCK

K. Thin Block sizes ¼", ⅜", ½", ¾", 1".

BLOCK

D. Regular Block sizes ⅛", ¼", ⅜", ½", ⅝", ¾", 1", 1¼", 1⅜", 1⅞", 2⅞".

CLASSIC

E. Classic sizes ¼", 5/16", ⅜", ½", ⅝", ¾", ⅞", 1", 1¼", 1½", 1¾", 2", 2½".

MODERN BLOCK

C. Modern Block sizes ⅜", ½", ⅝", ¾", 1", 1¼", 1½".

FUTURA

B. Futura sizes ⅜", ⅝", ¾", ⅞", 1¼", 1½", 2".

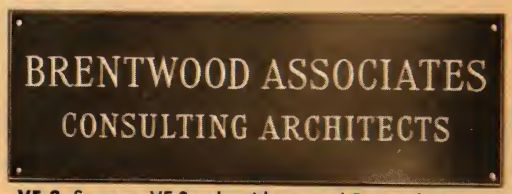
THE AGE OF COLOR



VE-1 Cast bronze tablet with Kabel style letters filled in Vitreous enamel.



VE-2 Oxidized bronze background with engraved Kabel style letters in contrasting enamel.



VE-3 Same as VE-2 only with spurred Roman letters.



VE-4 Block style letters filled in dark enamel to contrast with satin finished aluminum background.



VE-5 Cast bronze tablet with sculptured scroll work. Overall size 29" high x 38" wide. Without scrolls 20" high x 38" wide.



HARD-FIRED VITREOUS ENAMEL FOR TABLETS AND FACADE 3-D LETTERS

To meet today's ever-increasing demand for color, we now furnish hard-fired vitreous enameled tablets and letters produced under our own roof.

With an almost unlimited variety of color frits, we can bake into your tablets and letters the most magnificent, brilliant, eye-catching colors. These require no maintenance and polishing since they are as hard as granite and as smooth as glass.



VE-6 Roman style, enamel filled letters.



VE-7 Block style enamel filled letters.

BUILDING FACADE LETTERS

bronze • aluminum • stainless steel • porcelain enamel • galvaneal

As individual metal letter specialists for over 30 years, we have been privileged to furnish some of the most outstanding letter jobs in the country. Whether you prefer a solid cast letter or a fabricated, sheet-metal letter, we assure you of top quality at reasonable prices. Our staff of experienced designers and executives are available to consult with you in the development of your requirements. In addition to the illustrations shown, we also manufacture letters of your own special design such as logotypes, trade marks, foreign alphabets, etc.



FASCIA
No. 900

height	width	stroke	depth
2"	1½"	5/16"	¼"
3"	2"	½"	¼"
4"	2¾"	¾"	⅜"
5"	3½"	¾"	⅜"
6"	4"	1"	½"
8"	5"	1¼"	½"
10"	7"	1½"	⅝"

height	width	stroke	depth
12"	8½"	1⅝"	¾"
14"	9"	2"	¾"
16"	11"	2¼"	⅞"
18"	12"	2½"	⅞"
20"	14"	2¾"	1¼"
24"	18"	3"	1½"

ABCDEFGHIJKLMNOPQRSTUVWXYZ



KABEL
No. 901

height	width	stroke	depth
2"	1½"	¼"	¼"
3"	2"	½"	⅜"
4"	2¾"	¾"	⅜"
5"	3½"	¾"	½"
6"	4"	1"	½"
8"	5"	1⅜"	¾"
10"	7"	1½"	¾"

height	width	stroke	depth
12"	8½"	1¾"	¾"
14"	9"	2"	1"
16"	11"	2¼"	1"
18"	12"	2½"	1"
20"	14"	2¾"	1½"
24"	18"	3"	1½"

ABCDEFGHIJKLMNOPQRSTUVWXYZ



RIBBON
No. 902

height	width	stroke	depth
1"	¾"	⅛"	¼"
2"	1½"	¼"	¾"
3"	2"	¼"	¾"
4"	2½"	⅜"	1"
5"	3¼"	⅜"	1"
6"	4"	⅜"	1"
8"	5½"	⅜"	1¼"

height	width	stroke	depth
10"	7¼"	7/16"	1½"
12"	8"	½"	1¾"
14"	10"	½"	2"
16"	12"	⅝"	2¼"
18"	13"	¾"	2¾"
20"	15"	¾"	3"
24"	18"	¾"	3"

ABCDEFGHIJKLMNOPQRSTUVWXYZ



DEEP RIBBON
No. 910

height	width	stroke	depth
3"	2"	5/16"	1"
4"	2¾"	⅜"	1⅛"
5"	3⅝"	7/16"	1⅜"
6"	4⅛"	7/16"	1½"
8"	5⅛"	½"	1¾"
10"	7"	½"	2⅛"
12"	8"	⅝"	2 5/16"

height	width	stroke	depth
14"	9"	⅝"	2¼"
15"	10½"	11/16"	2¾"
16"	11"	¾"	2¾"
18"	13"	¾"	3"
20"	14"	¾"	3"
24"	18"	¾"	3"

ABCDEFGHIJKLMNOPQRSTUVWXYZ



FUTURA
No. 903

height	width	stroke	depth
2"	1½"	7/16"	½"
3"	2¼"	⅝"	½"
4"	3"	¾"	⅝"
5"	4"	15/16"	¾"
6"	5"	1¼"	⅞"
8"	6"	1⅝"	1⅛"
10"	8"	2"	1⅝"

height	width	stroke	depth
12"	10"	2¼"	1¾"
14"	11½"	2½"	2"
16"	13"	3"	2"
18"	14"	3½"	2½"
20"	16"	4"	2½"
24"	18"	5"	3"

ABCDEFGHIJKLMNOPQRSTUVWXYZ



ROMAN
No. 904

height	width	stroke	depth
2"	1½"	⅜" & 3/16"	¼"
3"	2¼	½" & 3/16"	¼"
4"	3½"	¾" & 5/16"	⅜"
5"	4"	⅞" & ½"	⅜"
6"	4¾"	1" & 5/16"	½"
8"	6"	1¼" & ¾"	⅝"
10"	8"	1½" & ¾"	¾"

height	width	stroke	depth
12"	10"	1⅞" & ⅞"	⅞"
14"	12"	2¼" & 1⅛"	⅞"
16"	14"	2½" & 1⅛"	1"
18"	15"	3" & 1½"	1¼"
20"	16"	3½" & 1⅝"	1½"
24"	20"	4" & 1⅞"	1½"

ABCDEFGHIJKLMNOPQRSTUVWXYZ

SPECIFY: United States Bronze Sign Co., Inc.

ROUND FACE
No. 905

height	width	stroke	depth
2″	1½″	⅜″ & ⅜″	⅝″
4″	3″	¾″ & ⅝″	7/16″
6″	4½″	1″ & ⅝″	⅝″
8″	6″	1¼″ & ¾″	¾″
10″	8″	1½″ & ¾″	¾″

height	width	stroke	depth
12″	10″	1⅞″ & ⅞″	⅞″
14″	12″	2¼″ & 1″	1″
18″	15″	3″ & 1½″	1¼″
24″	20″	4″ & 1⅞″	1½″

ABCDEFGHIJKLMNOPQRSTUVWXYZ

PORCEL
No. 906

height	width	stroke	depth
2″	1½″	¼″	¼″
3″	2″	7/16″	¼″
4″	2¾″	⅞″	¼″
6″	4″	1″	5/16″
8″	5″	1¼″	5/16″
10″	7″	1⅜″	5/16″

height	width	stroke	depth
12″	9″	1½″	5/16″
14″	10″	1¾″	5/16″
16″	11″	2⅛″	½″
18″	12″	2½″	½″
20″	14″	2¾″	½″
24″	18″	3″	½″

Roman Style Block Style

ABCDEGHJKMNOPQRSTUVWXYZ

BROADWAY
No. 907

height	width	stroke	depth
2″	1¾″	½″ & ¼″	¼″
3″	2¼″	¾″ & ⅜″	⅜″
4″	3½″	1″ & ½″	⅜″
6″	5″	1½″ & ⅝″	½″
8″	7″	2½″ & ¾″	⅝″
10″	9″	2¾″ & ⅞″	¾″

height	width	stroke	depth
12″	11″	3″ & 1″	1″
14″	12″	3½″ & 1¼″	1″
16″	14″	4″ & 1½″	1¼″
18″	16″	4¼″ & 1¾″	1¼″
20″	18″	4½″ & 2″	1½″
24″	22″	5″ & 2¼″	1½″

ABCDEFGHIJKLMNOPQRSTUVWXYZ

PRISMATIC
No. 908

height	width	stroke	depth
2″	1¾″	⅜″	¼″
3″	2½″	½″	⅜″
4″	3½″	⅝″	½″
5″	4½″	⅝″	½″
6″	5¼″	⅞″	⅝″
7″	6¼″	¾″	½″
8″	7½″	1⅛″	⅝″
9″	8½″	1¼″	¾″

height	width	stroke	depth
10″	9½″	1¼″	¾″
12″	11½″	1½″	¾″
14″	13″	1¾″	¾″
16″	15″	2″	¾″
18″	17″	2½″	1″
20″	18″	3″	1¼″
24″	21″	3″	1¼″

ABCDEFGHIJKLMNOPQRSTUVWXYZ

COVED
No. 909

height	width	stroke	depth
2″	1¾″	5/16″	¼″
3″	2½″	½″	5/16″
4″	3½″	9/16″	⅜″
5″	4½″	11/16″	⅜″
6″	5¼″	⅞″	⅝″
7″	6¼″	1″	¾″
8″	7½″	1⅛″	¾″
9″	8½″	1⅛″	¾″

height	width	stroke	depth
10″	9½″	1-5/16″	¾″
12″	11½″	1½″	¾″
14″	13″	2″	¾″
16″	15″	2″	¾″
18″	17″	2¼″	¾″
20″	18″	2¾″	1″
24″	21″	2¾″	1¼″

ABCDEFGHIJKLMNOPQRSTUVWXYZ

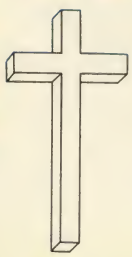
MADISON
No. 911

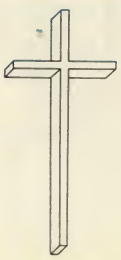
height	width	stroke	depth
2″	⅝″	3/16″	7/16″
3″	1″	¼″	¾″
4″	1½″	¼″	¾″
5″	1⅞″	¼″	¾″
6″	2″	⅜″	¾″
8″	2⅝″	7/16″	1″

height	width	stroke	depth
10″	3⅜″	½″	1″
12″	4″	½″	1½″
15″	5″	½″	2″
18″	7″	⅝″	2″
20″	8″	¾″	2¼″

ABCDEFGHIJKLMNOPQRSTUVWXYZ

CROSSES & CADUSEI


C-1


C-2


C-3

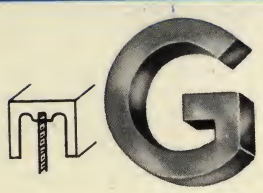

C-4

Available in practically all metals, either cast or fabricated. Sizes and designs to suit your specifications. All other religious and fraternal emblems can be furnished.

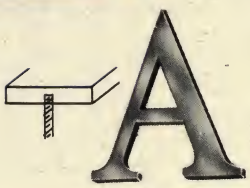
SPECIFY: United States Bronze Sign Co., Inc.

CAST LETTERS

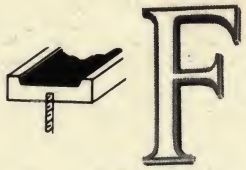
Solid bronze, aluminum, or nickel silver, our cast letters are made in a wide variety of styles and finishes. After casting, each letter is filed and finished to provide the desired texture and is given several coats of lacquer to guard the finish, or can be enamelled in any color.



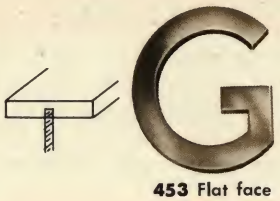
450 Channel



451 Flat face Roman



452 Porcelain enamel inlay



453 Flat face Block



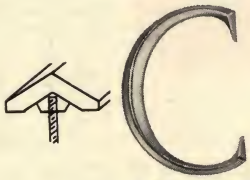
454 Ribbon



455 Round face



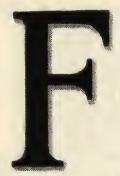
456 Coved



457 Prismatic



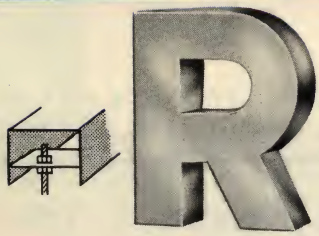
471 Enamelled aluminum letters in all colors.



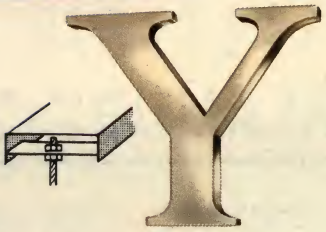
472 Outdoor satin black alumilited aluminum letters. Alumilited in other colors.

FABRICATED LETTERS

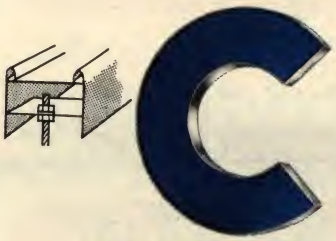
Fabricated from a wide variety of metals. Most popular are stainless steel, bronze, aluminum, galvaneal and porcelain enamel iron. For striking effects, the face of the letter can vary with the sides. For example, combine a black porcelain face with stainless steel sides for contrast.



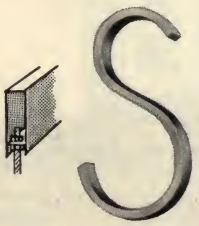
462 Block style channel letter



463 Roman style channel letter.



464 Block style letter with face of contrasting material. Most popular is porcelain enamel face and stainless steel sides.



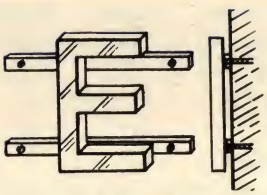
465 Ribbon style letter either fabricated of sheet metal or solid bar stock.

INSTALLATION METHODS

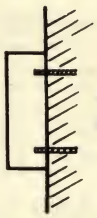
Unless otherwise specified, letters are supplied with non-ferrous threaded rods at back for flush mounting. Sleeves of any length can be furnished to project letters away from the face of a building. Bars can be furnished either top or bottom for mounting letters on marquees or suspending them from soffits.



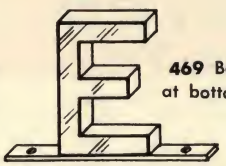
466 Set out from building on sleeves.



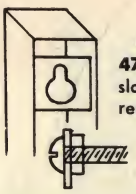
467 Bars at back, top and bottom.



468 Flush mounted.



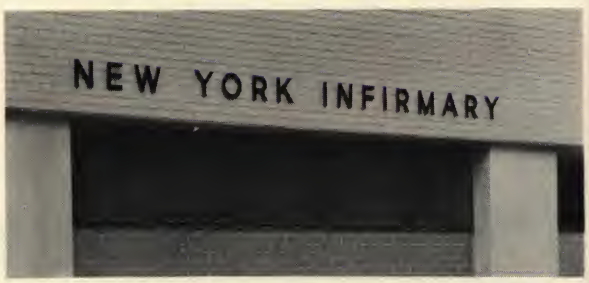
469 Bar at bottom.



470 Keyhole slots for easy removal.



◀ Fascia style letters in dark finish to contrast with satin aluminum background.



Futura style letters black alumilited installed against light brick. ▶

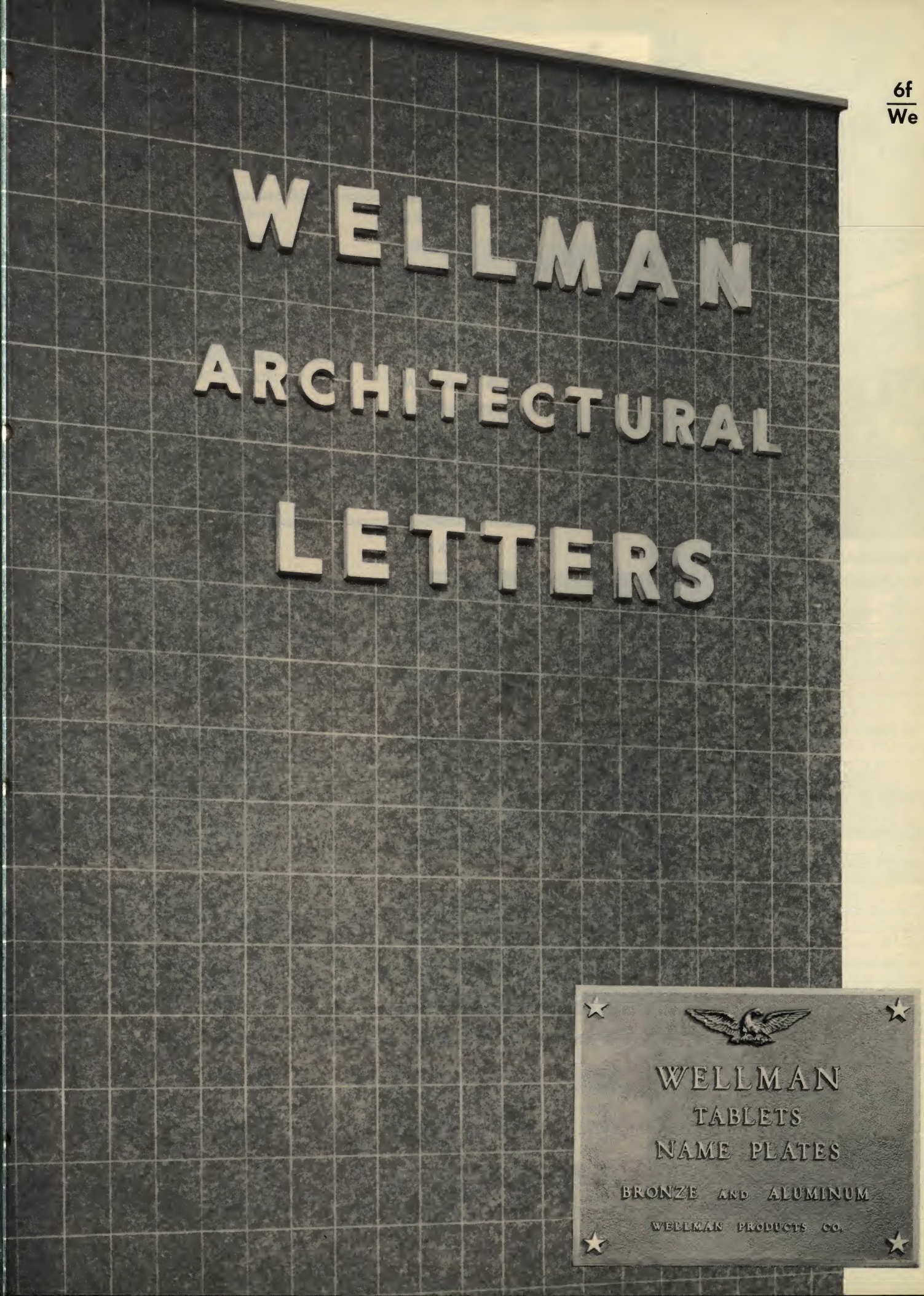


◀ Cast aluminum Futura style letter alumilited. Seal is made of sculptured cast aluminum.



Fabricated stainless steel ribbon letters mounted to bar and suspended from soffit. ▶

UNITED STATES BRONZE SIGN CO., INC., DEP'T S, 101 WEST 31st ST., NEW YORK 1, N. Y.


WELLMAN
ARCHITECTURAL
LETTERS
WELLMAN
TABLETS
NAME PLATES
BRONZE AND ALUMINUM
WELLMAN PRODUCTS CO.



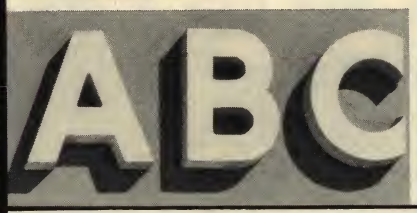
WELLMAN GOLD ANODIZED LETTERS Made to Customer's Special Design

Photo Courtesy Libby-Owens-Ford Glass Co.

ARCHITECTURAL

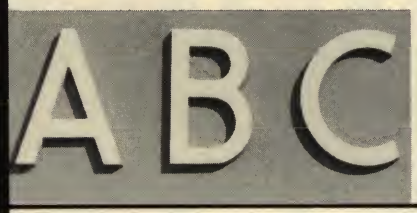
10 STANDARD STYLES

FUTURA



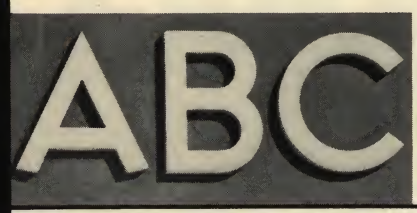
	DIMENSIONS IN INCHES											
HEIGHT	2	3	4	5	6	8	10	12	15	18	20	24
WIDTH Average	1 5/8	2 7/16	3 1/4	4 1/8	4 7/8	6 1/2	8 1/4	9 3/4	12	14 3/4	16 1/2	19 1/2
STROKE	7/16	5/8	13/16	1 1/16	1 1/4	1 5/8	2 1/8	2 1/2	3 1/8	3 3/4	4 1/4	5
THICK Face-to-back	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2 1/4	2 1/2	3	3

FUTURA MEDIUM



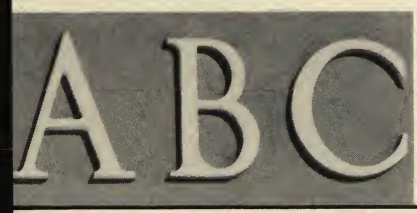
	DIMENSIONS IN INCHES							
HEIGHT	2	3	4	6	8	10	12	18
WIDTH Average	1 1/2	2 1/4	3	4 1/2	6	7 1/2	9	13 1/2
STROKE	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2 1/4
THICK Face-to-back	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2 1/4

KABEL



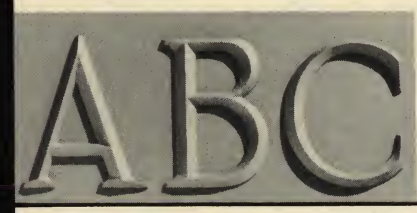
	DIMENSIONS IN INCHES										
HEIGHT	2	3	4	5	6	8	10	12	15	18	20
WIDTH Average	1 1/2	2	2 3/4	3 1/2	4	5	7	8	10	12	13
STROKE	5/16	7/16	5/8	3/4	7/8	1 1/8	1 1/2	1 3/4	2 3/8	2 5/8	3
THICK Face-to-back	1/4	1/4	1/4	1/2	1/2	5/8	11/16	3/4	7/8	1	1 1/8

CLEARFACE



	DIMENSIONS IN INCHES							
HEIGHT	2	3	4	5	6	8	10	12
WIDTH Avg.	2	3	4	5	6	8	10	12
STROKE Max.	7/32	11/32	1/2	9/16	11/16	7/8	1 1/8	1 3/8
STROKE Min.	7/64	11/64	7/32	9/32	11/32	7/16	9/16	11/16
THICK Face-to-back	3/16	1/4	1/4	3/8	3/8	1/2	1/2	1/2

PRISM



	DIMENSION IN INCHES												
HEIGHT	2	3	4	5	6	8	10	12	14 1/2	15 1/2	18	20	24
WIDTH Avg.	2	3	4	5	6	8	10	12	14 1/2	15 1/2	18	20	24
STROKE Max.	9/32	7/16	9/16	3/4	7/8	1 1/8	1 3/8	1 11/16	2 1/16	2 3/16	2 1/2	2 3/4	3 3/8
STROKE Min.	5/32	1/4	5/16	3/8	1/2	5/8	3/4	15/16	1 1/8	1 1/4	1 3/8	1 1/2	1 7/8
THICK Face-to-back	1/4	3/8	3/8	1/2	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4

"WELLMAN STANDARD PROPORTIONED"

In all Wellman styles, standard letters in all the different sizes are all proportioned alike. For example: if the *stroke* of the 6-inch letter is 1/4-inch, the stroke of the 12-inch letter will be 1/2-inch. Likewise, the *width* of the 6-inch letter will be twice that of the 6-inch letter.

This makes it possible to photographically, (or by pantograph, etc.), increase the standard drawing of a style to any SIZE, or to obtain dimensions of other sizes by applying the required scale.

TO FIGURE SPACE . . .

To figure space required by letters, multiply the quantity of letters by the width of the average letter. Then add 10%, to provide the minimum space between letters. Finally add the width of a letter, at least, for space between words. This gives the approximate minimum space required.

To obtain the exact spacing required, use a Wellman "Scale Outline Drawing" as noted on page 8. This will give you accurate dimensions.

If desired, templates for installing letters can be furnished at a nominal charge.

WELLMAN QUALITY . . .

Because Wellman casts all letters in its own foundry, using only the finest available aluminum and bronze metals and maintains the highest standards for Wellman pattern making and letter finishing, the quality of these letters is unsurpassed.

5 FINISHES IN ALUMINUM Alcoa Alloy No. F-214†

1—PRIMED ALUMINUM "as-cast" letters, with burrs and flashings removed and sand-blasted, followed by 2 abrasive finishes for smoother face surfaces. Primed and ready for painting.

2—SPRAYED ENAMEL aluminum letters as above, with smooth finished faces; with best quality gloss enamel applied in choice of colors.

3—BAKED ENAMEL letters prepared as above, with scientifically baked enamel for long life; glossy finish in choice of colors.

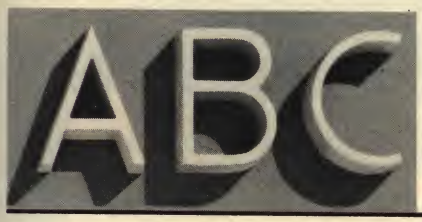
4—STANDARD ALUMILITE* in aluminum letters with smooth sanded and buffed satin faces and silvery sand blasted matte edges. ALSO available in gold alumilited* letters, with a permanent rich gold color.

5—SPECIAL ALUMILITE* aluminum letters with smooth sanded and buffed satin faces and filed and ground edges. ALSO available, gold aluminited*.

LETTERS

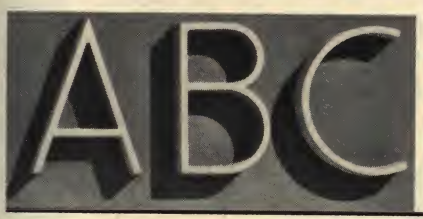
CAST ALUMINUM or BRONZE

HEAVY RIBBON



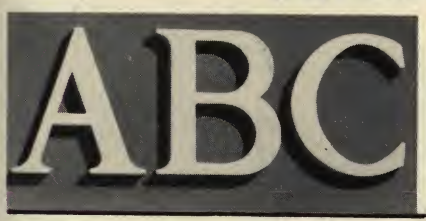
	DIMENSIONS IN INCHES									
HEIGHT	2	3	4	5	6	8	10	12	15	18
WIDTH Average	1½	2	2¾	3½	4	5	7	8	10	12
STROKE	5/32	7/32	5/16	3/8	7/16	5/8	3/4	7/8	1⅛	1 5/16
THICK Face-to-back	¾	1	1⅛	1⅜	1½	1⅞	2⅛	2½	3	3

LIGHT RIBBON



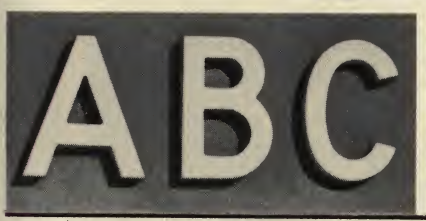
	DIMENSIONS IN INCHES							
HEIGHT	2	3	4	5	6	8	10	12
WIDTH Average	1½	2	2¾	3½	4	5	7	8
STROKE	3/32	1/8	3/16	7/32	1/4	5/16	7/16	½
THICK Face-to-back	½	¾	¾	¾	¾	⅞	1	1⅛

GARAMOND



	DIMENSIONS IN INCHES											
HEIGHT	2	3	4	5	6	8	10	12	15	18	20	24
WIDTH Avg.	1¾	2½	3¾	4⅛	5	6⅝	8¼	10	12½	15	16½	20
STROKE Max.	5/16	½	5/8	13/16	1	1 5/16	1⅝	2	2½	3	3⅜	4
STROKE Min.	5/32	7/32	5/16	3/8	7/16	9/16	¾	⅞	1⅛	1 5/16	1½	1¾
THICK Face-to-back	¼	⅜	⅜	½	⅝	¾	¾	1	1⅛	1½	1½	1¾

CLEVELAND



	DIMENSIONS IN INCHES							
HEIGHT	2	3	4	5	6	8	10	12
WIDTH Average	1½	2	2¾	3⅜	4	4¾	5¼	6
STROKE	9/32	7/16	9/16	¾	⅞	1⅛	1 7/16	1¾
THICK Face-to-back	¼	⅜	⅜	½	½	⅝	11/16	¾

BROADWAY



	DIMENSIONS IN INCHES											
HEIGHT	3	4	5	6	8	10	12	14	15	18	20	24
WIDTH Avg.	3	4	5	6	8	10	12	14	15	18	20	24
STROKE Max.	13/16	1 1/16	1⅜	1 5/8	2⅛	2 11/16	3¼	3¾	4	4 13/16	5⅛	6½
STROKE Min.	5/16	7/16	9/16	5/8	⅞	1 1/16	1¼	1½	1 5/8	1 15/16	2 3/16	2½
THICK Face-to-back	5/8	5/8	¾	¾	⅞	1⅛	1¼	1⅜	2	2	2¼	2½

LETTERS OF BEST FORMULA ARCHITECTURAL BRONZE

6—OXIDIZED BRONZE: Letter faces are ground smooth, edges are filed, ground and entire letter sand blasted for uniformity. Letters are oxidized and given a clear exterior lacquer coating.

7—OXIDIZED BRONZE, SATIN FACES finished like No. 6, except that faces are given a smooth satin finish, with special abrasives. Letter is clear lacquered.

8—SATIN BRONZE letter faces are ground and polished to a rich satin finish and edges are filed and ground, then entire letter is clear lacquered.

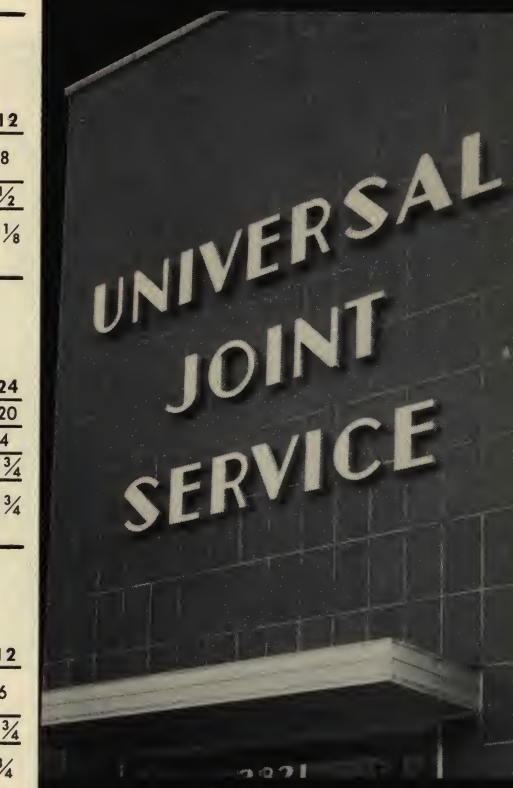
NOTE: Finishes No. 4 and 5 can be furnished with edges of letters enameled in a color and with notural aluminum finished faces.

†Architectural Metal Handbook of Ornamental Metal Mfgrs. recommends F-214 Aluminum for Alumilite Finish.

*Patented by the Aluminum Co. of America, this anodizing retards corrosion better than any other known method.



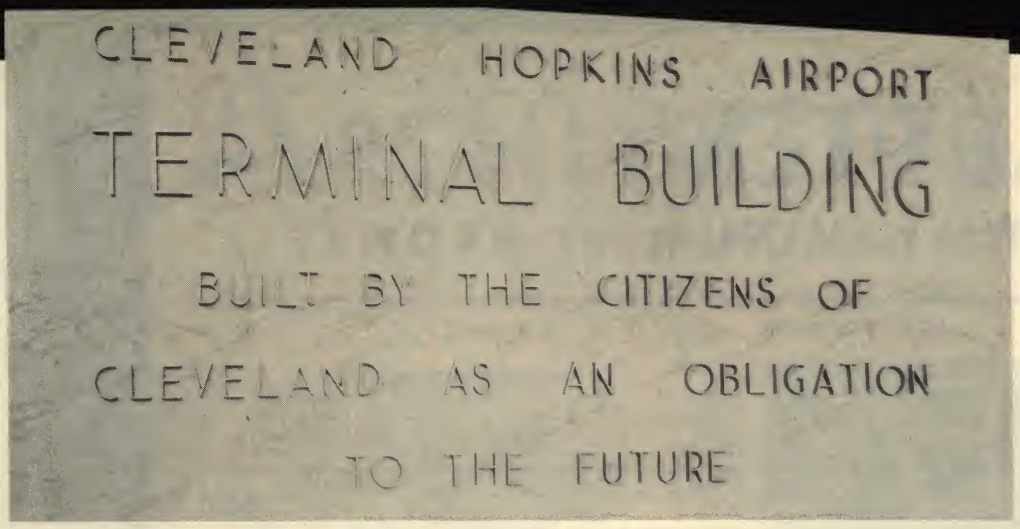
PRISM LETTERS



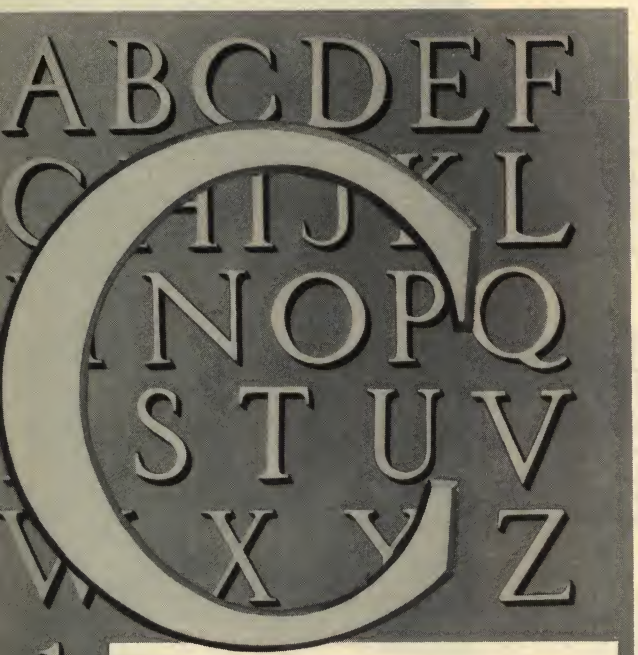
BROADWAY LETTERS



GARAMOND LETTERS



WELLMAN LIGHT RIBBON LETTERS MOUNTED ON MARBLE WALL



POLISHED "CLEARFACE" LETTERS OF BRONZE OR ALUMINUM

Popular for use on doors and walls, ideal for room numbers, for names, also used on boats, choice of 14 different sizes. In bronze, with polished faces and edges are oxidized. In cast aluminum with matte edges and satin finished faces, entire letter alumilited.

ARCHITECTURAL LETTER "SPECIFICATIONS"

SUGGESTED WORDING of SPECIFICATIONS for LETTERS

Cast Aluminum Letters to be manufactured by Wellman Products Co., 1444 E. 49th St., Cleveland 3, Ohio. Letters shall be .....Style; ..... inches in Height; .....inch Stroke; .....inches in Depth, drilled and tapped for (back, bottom or top) mounting. Finish to be No.....(see Finishes No. 1 thru 5, footnote page 2). Letters shall be cast of Aluminum Company of America alloy No. F-214, in accordance with the best foundry practice.

(Note: If Finishes No. 2 or No. 3 are specified, designate color.

Cast Bronze Letters to be manufactured by Wellman Products Company 1444 East 49th Street, Cleveland 3, Ohio. Letters shall be.....Style; .....inches in Height; .....inch Stroke; .....inches in Depth, drilled and tapped for (back, bottom or top) mounting. Finish of letters to be No..... (See Finishes No. 6 thru No. 8, footnote page 3). Letters to be cast of the best grade architectural bronze, in accordance with best accepted foundry practices.





HEBREW LETTERS

Of aluminum or bronze, in standard sizes ¼", ⅜", ½", ⅝", 1¼", 4" and 10"; or special sizes to your specifications. Extensively used for individual letter mounting on wood, marble etc. or cast on bronze tablets.

SPECIAL LETTERS CAST ON MOUNTING BARS



LIGHT RIBBON LETTERS ILLUSTRATED

Words or inscriptions *cost* as a single integral unit for simplified mounting. Bars can be cast on backs, bottoms or tops of Wellman Standard Style letters; or cast on special letters, according to your drawing. They're distinctive and modern in design.

WELLMAN TABLETS NAME PLATES

6f
We

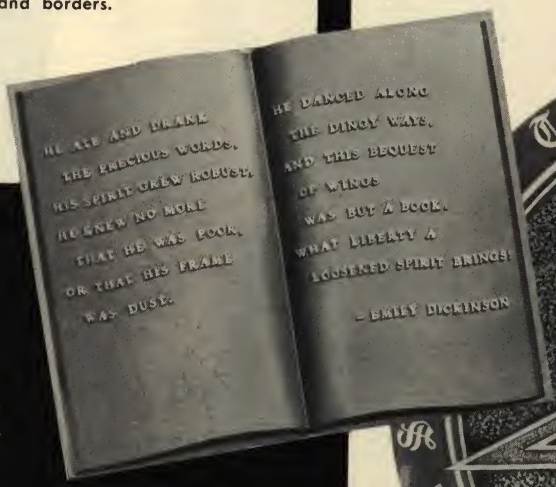


WELLMAN FUTURA LETTERS

CAST BRONZE OR ALUMINUM

Extensive experience and complete facilities for designing, pattern making, casting and finishing (grinding, chasing, sandblasting, belt and disc sanding, buffing, oxidizing, enameling, lacquering and anodizing), including the manufacture of standard and special pattern letters for inscriptions and special emblems, trademarks, insignia and borders.

AT RIGHT: Circular and Open Book backgrounds from our stock; or made to your design.





BELOW: 11 popular Wellman Letter Styles for Tablets. Select Other Styles from our Pattern Letter Catalog, (free copy on request).

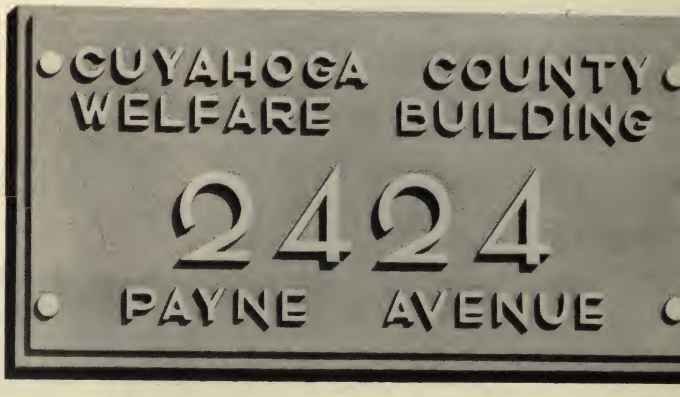
WELLMAN

TABLET LETTERS AND FIGURES

CLEAR FACE	ABCD	2345
WELLMAN TABLET	ABCD	2345
COND. TABLET	ABCD	2345
CLEVELAND	ABCD	2345
DEEP BLOCK	ABCD	2345
EXT. DEEP BLOCK	ABCD	2345
FLAT FACE NO. 2	ABCD	2345
LIGHT HAIR LINE	ABCD	2345
OVAL FACE TABLET	ABCD	2345
lower case tablet	abcd	2345
NARROW LINE	ABCD	2345

WELLMAN PRODUCTS CO.
CLEVELAND 3, OHIO

This Bronze Tablet, illustrating Letter Styles, is available to Dealers and Tablet Manufacturers.



THE WELLMAN PRODUCTS CO.

- MEMBER NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS
- MEMBER CONSTRUCTION SPECIFICATIONS INSTITUTE

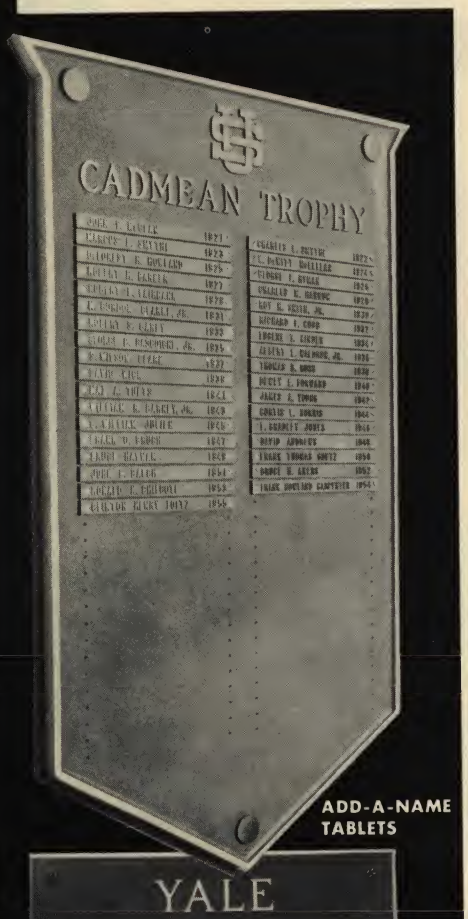
WELLMAN TABLETS



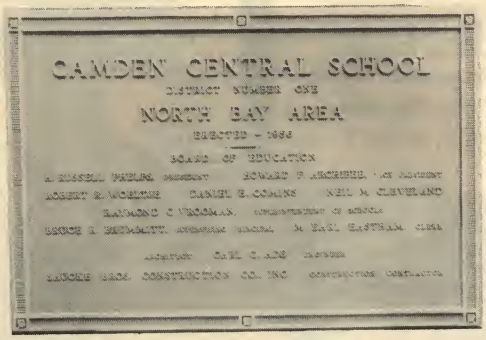
MODERN OR TRADITIONAL . . . ANY SIZE OR SHAPE

Wellman cast bronze or cast aluminum tablets are the result of long experience, since 1900, in the field of designing, patternmaking, casting, and finishing within our own plant. Recognized for decades of leadership in designing and manufacturing tablet and pattern letters, our stock of millions of these letters enables us to make tentative set-ups of actual tablet layouts. This is usually more satisfactory than drawings or sketches, in visualizing desired effects for the finished tablets. Also, we can submit rubbings or "proofs" to you, for approval, before casting a tablet.

ALL TYPES OF STANDARD AND SPECIAL BORDERS



ADD-A-NAME TABLETS



SCHOOL AND CHURCH TABLETS

Widely and appropriately used on these edifices, they can be designed in a large number of sizes, in different shapes and styles, using Wellman standard letters or specially designed letters.

NAME PLATES, ROOM NUMBERS

Office buildings, banks, hospitals, schools, other institutions and public buildings specify these Wellman plates extensively. Available in modern or conventional design, in any size. Standard number series from 1 to 9999. Directional arrows are available on plates.

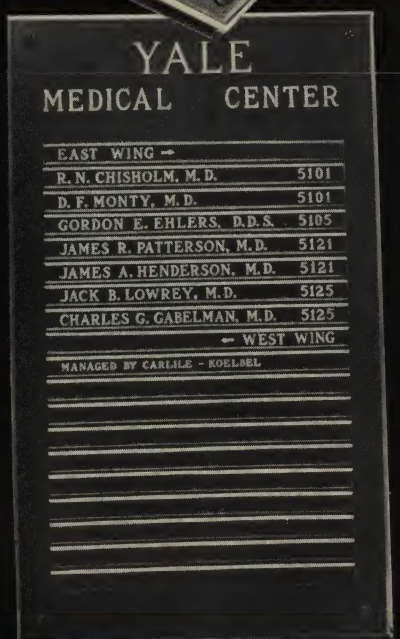
ADD-A-NAME TABLETS

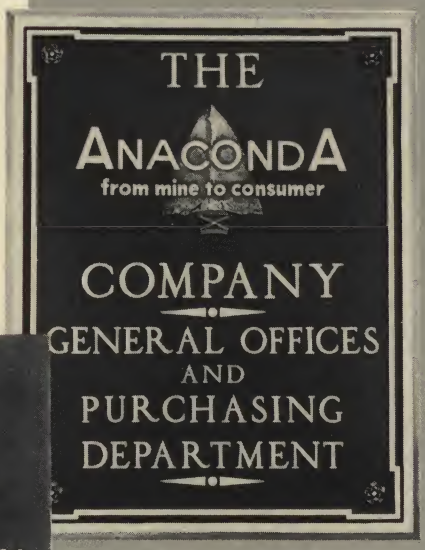
Tablets which are used in a wide variety of situations requiring changes of names, or adding of names; such as winners names on trophies, contributors' names to institutions, directories requiring shifting or replacement of names. The large master plate is furnished drilled and tapped, ready for the later addition of any specified number of small name plates. Small individual nameplates can then be ordered when required.

MEMORIAL TABLETS

Available in a variety of sizes and designs, commensurate with the uses of such tablets; such as on civic buildings, in parks or cemeteries, on college campuses.

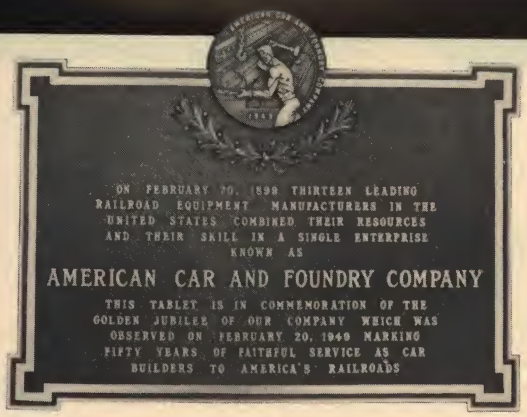








SPECIAL U. S. ARMED FORCES GRAVE MARKER



SCULPTURED TABLETS

Wellman has a number of accomplished and nationally prominent sculptors available in Cleveland. Their work in bas-relief tablets has won widespread acclaim and their talent is always available for providing portraits and other fine bas-relief sculpturing.

DONOR PLATES

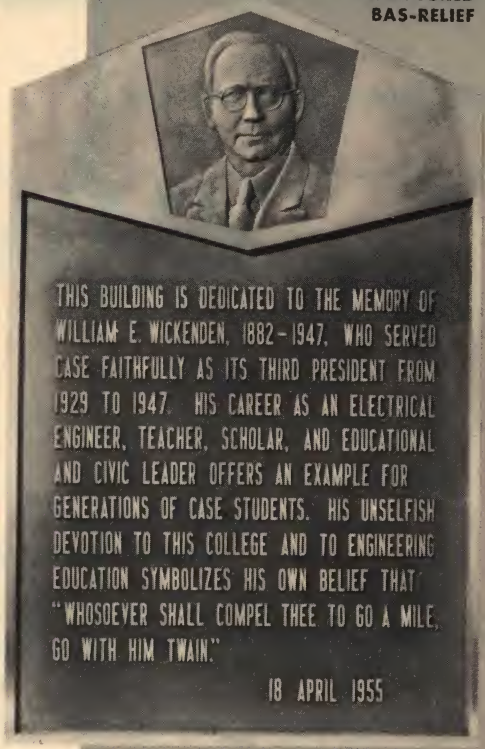
Used extensively to stimulate donations to churches, hospitals, colleges and other organizations; for gifts of rooms, equipment or entire buildings. Such tablets perpetuate the donor's name and are often inscribed in memory of a donor's friend or relative.

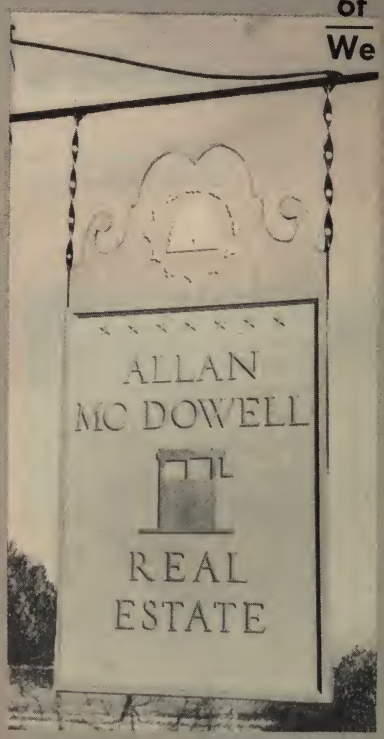
COMMERCIAL NAMEPLATES

Since the making of the original pattern and other preliminary operations constitute a considerable part of the cost of a tablet, the production of multiple copies is often surprisingly economical. We specialize in making tablets, nameplates and emblems in quantities of from two to several thousands from the original design. In such cases a change of wording, such as the substitution of a different name on each plate, is often made.

STANDARD OR SPECIAL ROSETTES OR INVISIBLE FASTENERS AVAILABLE

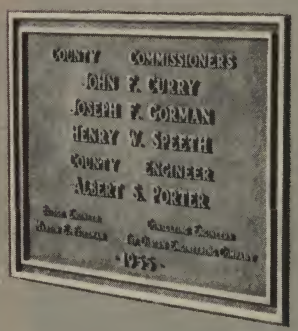
SCULPTURED BAS-RELIEF





DOUBLE-FACE TABLET-SIGN

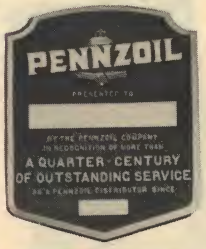


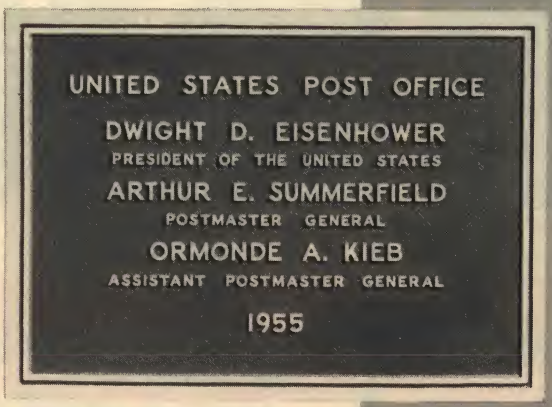


BRIDGE TABLET



DEALER AWARD

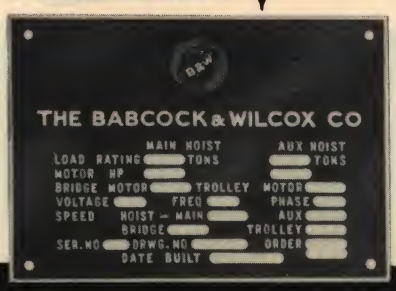




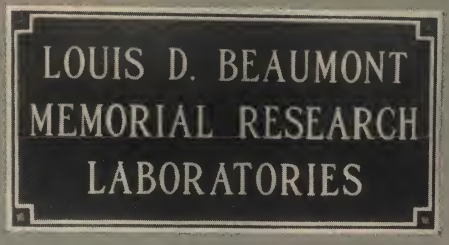
AUTHORIZED UNITED STATES POST OFFICE PLAQUE



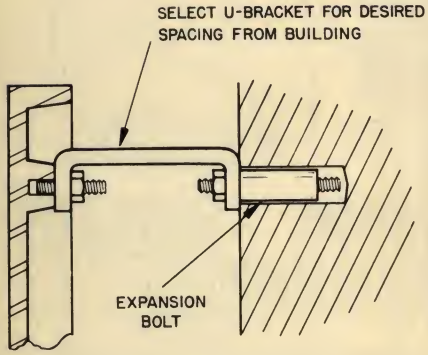
MACHINE NAMEPLATE





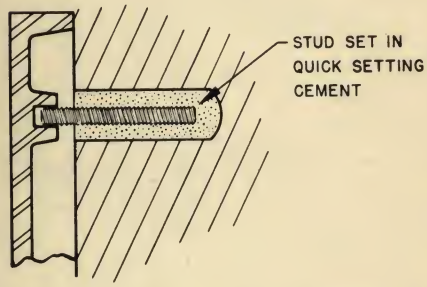


METHODS OF MOUNTING SIGN LETTERS



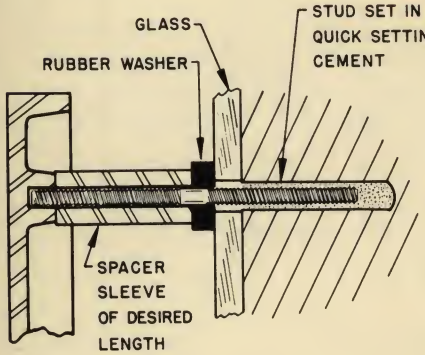
U-BRACKETS

Wellman can furnish all the necessary hardware for attaching metal letters. In this case, attach U-Bracket of desired length to back of the letter. Then place the other end of the U-Bracket over the stud or expansion bolt in the wall and tighten to expand the sheath in the wall.



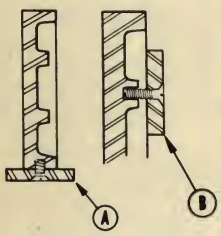
THREADED STUDS

Holes are drilled into masonry and filled with quick-setting cement. Then the studs, (which are screwed into backs of the letters) are pushed into the cement-filled holes. Letters may be flush with the masonry or projected slightly from the wall surface, (thus rain, snow, etc., can not "streak" the wall).



STUD WITH SPACER

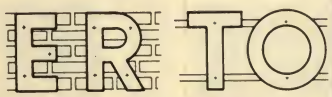
Sketch shows letter mounted over glass, which covers masonry. As shown, holes of desired depth are drilled in masonry, before applying glass, and filled with quick-setting cement. The studs on reverse of letters, projecting thru spacer sleeves, are then pressed into the cement. A washer or mastic is used as a sealer.



BAR MOUNTED

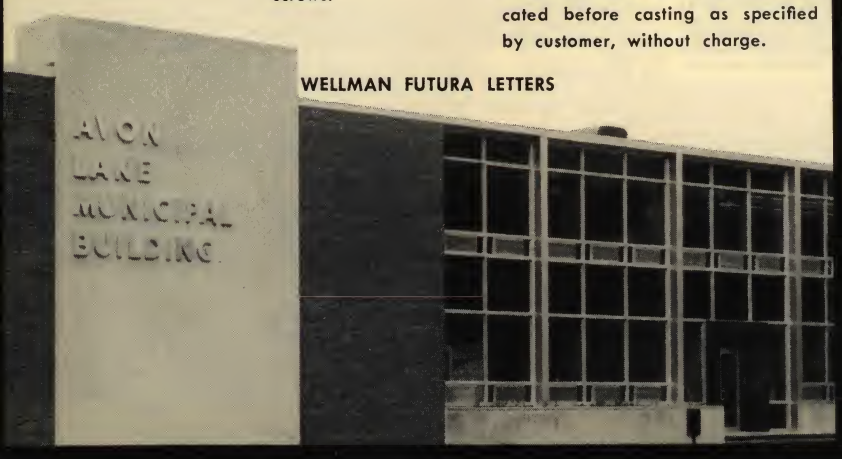
A-Screw the bar on bottom of letter, which may be provided with drilled and tapped bases to receive screws.

B-Screw the bar on reverse side of letters, which have backs drilled and tapped to receive machine screws.



ON MASONRY OR BARS

Letters have from 2 to 5 drilled and tapped holes on the reverse sides, depending upon size of letters, to correspond with standard brick mortar lines; or these holes will be located before casting as specified by customer, without charge.



WELLMAN FUTURA LETTERS



"SCALE" OUTLINE DRAWINGS

AVAILABLE IN 1 x 1½ INCH HEIGHTS TO ASSIST DRAFTSMEN AND INSTALLERS IN THEIR LETTER LAYOUTS

Accurate scale outline drawings of the faces of all Wellman Architectural Letter styles have been reproduced and printed on convenient 8½ x 11" sheets.

Wellman letters are "Standard Proportioned"*, so you can trace wording from these sheets and "blow them up" or reduce them.

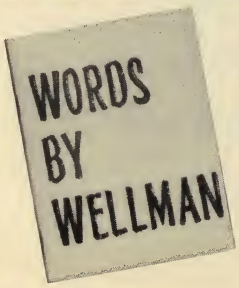
These scale drawings save time, and insure accuracy. They are yours for the asking, at no cost.

*See Page 2.

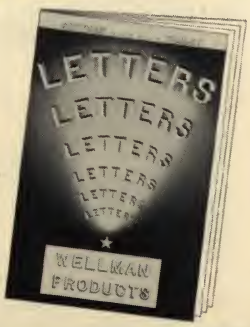
SPECIALLY DESIGNED LETTERS

. . . including emblems or trade marks of various sizes, shapes and finishes can be cast in aluminum or bronze, (see photo example, page 2). Send your sketch or blueprint.

ASK FOR THESE PUBLICATIONS



"Words by Wellman"—A House Organ containing brief articles of general interest . . . informal, entertaining and non-technical. No charge to architects or anyone connected with the building trades.



MILLIONS OF TABLET AND PATTERN LETTERS

AVAILABLE from stock in cast aluminum, bronze or white lead. The new catalog illustrates the numerous styles and sizes of letters available.

THE
WELLMAN PRODUCTS CO.
Since 1900
EAST 49th ST. and SUPERIOR AVE.
CLEVELAND 3, OHIO

aabec pole division of

the morgan-- francis company, inc.

flagpoles

Long experience in the fabrication of metal flagpoles, expert craftsmen and shop facilities, equipped with the most up to date machinery enable us to meet exacting requirements set forth in any specification.

The Morgan-Francis Co. staff, always ready to assist architects and contractors for information on design, limited budgets, difficult installations and shipping. Our products are designed for utmost safety under all weather conditions.

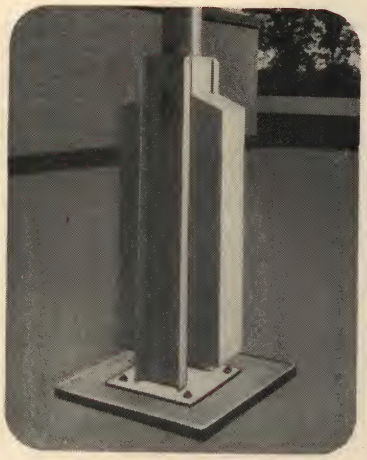
Years of dependable services on designs provide beauty and grace to properly support and display our nation's most significant emblem, epitomizing democracy and freedom for mankind the world over.



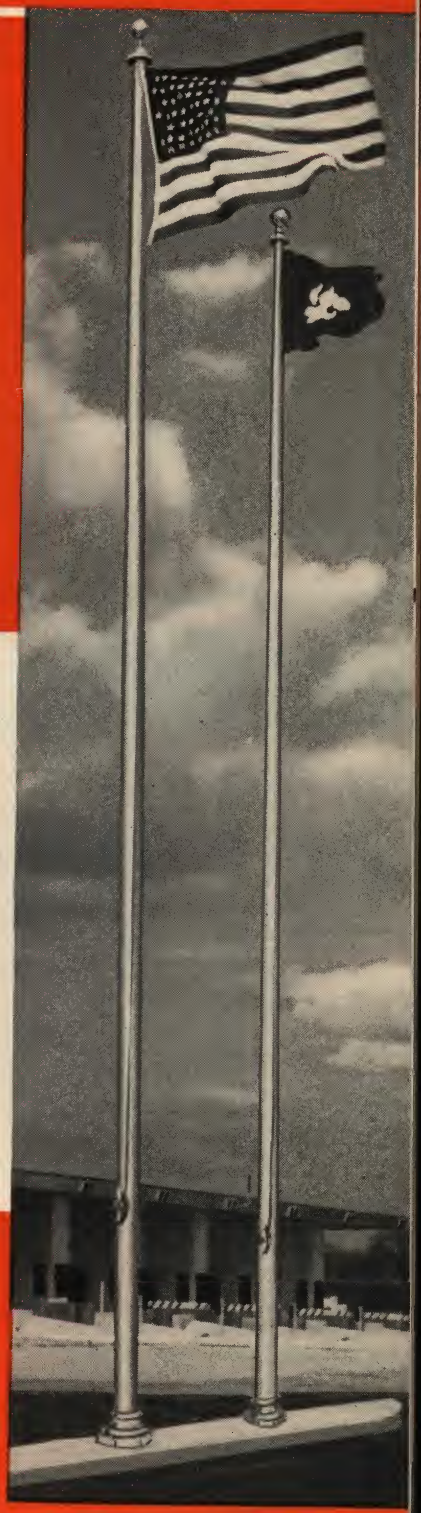
vertical



outrigger



tilting



a typical Twin pole installation for thruways

a *aluminum & steel tapered*

b *steel sectional & tilting*

c *wall mounted*

d *foundations, fittings, bases*

e *line dryer poles, nautical, roof mounted*

back cover

• **engineering service** • **erection** • **maintenance** • **estimating** • **antenna pole**

aluminum tapered

description

Machine tapered to form an uninterrupted exterior surface without visible joints or offsets. Made from seamless aluminum tubing, 3/16″ minimum wall, alloy 6063-T-6. Uniform conical taper, 1 inch in every 5′6″ throughout tapered portion. Satin brushed finish heavily waxed.

Field Joints: When these poles are shipped in more than one section, at extra cost, we supply self-aligning, machine fitted, tapered field joints that any erector can push together without field welding (per accompanying instructions on Page 3—see cut).

Ship by truck in one piece up to 40′, in many states, by railroad up to 60′.

dimensions

exposed height, feet	setting depth, feet	total length, feet	tapered portion	cylindrical butt	diameter in inches			wall thickness, inches	pole weight, bare
					butt	top	ball		
20	3	23	9′8″	13′4″	5	3¼	5	3/16	80
25	3	28	11′0″	17′0″	5½	3½	6	3/16	110
30	3½	33½	13′9″	19′9″	6	3½	6	3/16	140
35	3½	38½	19′3″	19′3″	7	3½	6	3/16	185
40	4	44	24′9″	19′3″	8	3½	8	3/16	250
50	5	55	33′0″	22′0″	10	4	10	3/16	385
59	6	65	38′6″	26′6″	12	5	12	3/16 & ¼	625
65	6½	71½	38′6″	33′0″	12	5	12	upper ¼ lower	690

Importance of proper ground setting. The proper foundation and setting of ground set poles is important to the life of the pole. For specific cases, write us for large scale details.

steel cone tapered

description

This uniform pole has a smooth exterior surface with no visible joints or offsets, and had a minimum wall thickness of ¼ inch. Conical taper of 1″ in every 7.14 feet of tapered length. The cylindrical butt portion is of seamless steel pipe or tubing. This graceful flagpole combines economy with high strength.

When shipped in sections, each section has a self-aligning field joint that can be pushed together easily. Then a small weld around pole — ground smooth — completes the union.

Ship by truck in one piece up to 40′, in many states, by railroad up to 60′.

dimensions

exposed height, feet	setting depth, feet	total length, feet	¼″ wall, tapered portion, feet	cylindrical butt, feet	butt cylindrical wall thickness, inches	diameter in inches			pole weight, bare
						butt	top	ball	
ECONOMY TYPE									
25	3½	28½	12½	16	.247	5	3¼	5	395
30	3½	33½	12½	21	.247	5	3¼	6	460
35	4	39	16½	22½	.250	5 5/16	3¼	6	610
40	4	44	19½	24½	.250	6	3¼	6	730
50	5	55	24	31	.280	6 5/8	3¼	7	1040
59	6	65	31¼	33¾	.301	7 5/8	3¼	8	1435
70	7	77	38½	38½	.322	8 5/8	3¼	8	2185
75	7½	82½	45¼	37¼	.342	9 5/8	3¼	10	2460
80	8	88	53½	34½	.365	10¾	3¼	10	2850
90	9	99	58¾	40¼	.375	11¾	3½	12	3550
100	10	110	66	44	.375	12¾	3½	12	4300
STANDARD TYPE									
20	3	23	12½	10½	.247	5	3¼	5	325
25	3½	28½	16½	12	.258	5 5/16	3¼	6	425
30	3½	33½	19½	14	.250	6	3¼	6	535
35	4	39	24	15	.280	6 5/8	3¼	6	690
40	4	44	31¼	12¾	.301	7 5/8	3¼	8	870
50	5	55	38½	16½	.322	8 5/8	3¼	8	1235
59	6	65	53½	11½	.365	10¾	3¼	10	1550
70	7	77	60½	16½	.375	11¾	3¼	10	2400
75	7½	82½	62½	20	.375	12¾	4	12	2850
80	8	88	71½	16½	.500	14	4	12	3475
90	9	99	78¼	24¼	.500	15	4	14	4225
100	10	110	85¾		.500	16	4	14	5000
SUPERSTANDARD TYPE									
30	3½	33½	24	9½	.280	6 5/8	3¼	6	590
35	4	39	29½	9½	.301	7 5/8	3½	8	775
40	4	44	33	11	.322	8 5/8	4	8	1025
45	4½	49½	36½	13	.342	9 5/8	4½	8	1300
50	5	55	41	14	.365	10¾	5	10	1625
59	6	65	44½	20½	.375	11¾	5½	10	2200
65	6½	71½	51¾	19¾	.375	12¾	5½	12	2665
70	7	77	60¾	16¼	.500	14	5½	12	3300
75	7½	82½	67¾	14¾	.500	15	5½	14	3625
80	8	88	71½	16½	.500	16	6	14	4150
90	9	99	82	17	.500	18	6½	14	5100
100	10	110	96	14	.500	20	6½	14	6600

flagpoles

6g/Aa

a

- aluminum tapered
- steel cone tapered
- ground set

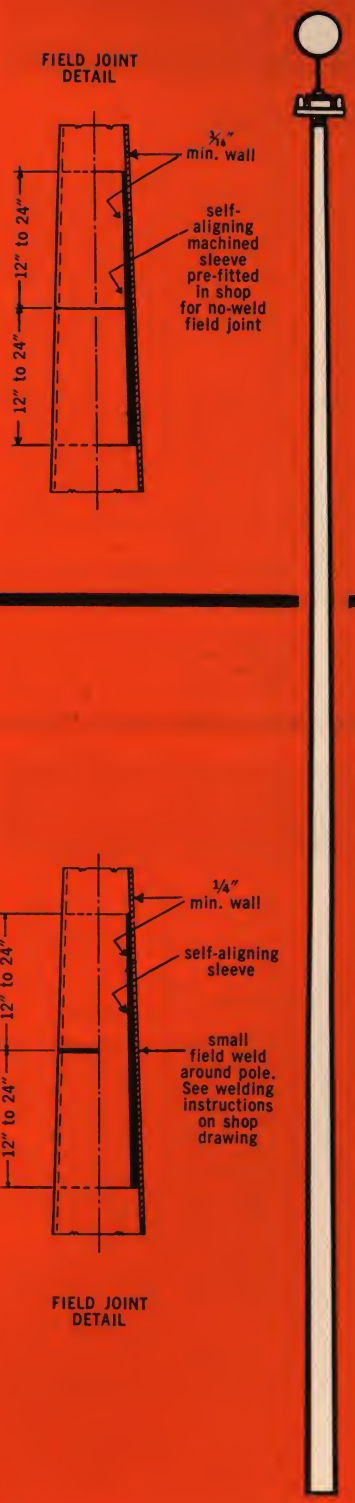
specifications

Furnish and erect, where shown on drawings or in specifications, a seamless aluminum tapered flagpole, with all necessary fittings listed below, as manufactured by The Morgan-Francis Co., Inc., Route #1 at Expressway, Stratford, Conn. Flagpole to be ground set, ... feet exposed height, ...feet total length. The tapered portion shall be ..... feet ..... inches, the butt diameter ..... inches and the top diameter ..... inches.

Standard Fittings: Copy specification details on pages **8 & 9** for Aluminum Ball, Aluminum Truck, Halyards, Flagsnaps, Aluminum Cleats.

For foundation assembly specifications and bases, see pages **8 & 9**

PAINTING. The unexposed portion of the flagpole and all parts below ground, including the foundation sleeve assembly, shall receive a heavy shop coat of black asphaltum paint on both inside and outside surfaces. (Painting of aluminum exterior surfaces is not recommended.)



specifications

Where shown on drawings or in specifications, furnish and erect an..... (Economy or Standard) type seamless steel cone tapered flagpole, with all necessary fittings listed below, as manufactured by The Morgan-Francis Co. Inc., Route #1 at Expressway, Stratford, Conn. Flagpole to be ground set, ... feet exposed height, ... feet total length. The tapered portion shall be ..... feet ..... inches, the butt diameter ..... inches, and the top diameter ..... inches.

Standard Fittings: Copy specifications from pages **8 & 9** for details on Gold Leafed Ball, Aluminum Truck, Halyards, Aluminum Cleats, Bronze Flagsnaps.

Optional equipment, Flash Collars, Decorative Bases — Ref. pages **8 & 9**

PAINTING. All steel parts shall receive a shop coat of red lead and oil. Unless otherwise specified, two coats of Marine White or Aluminum shall be added — one in the shop and one in the field. All unexposed areas shall receive a shop coat of black asphaltum paint on both inside and outside surfaces.

For foundation assembly specifications and bases, see pages **8 & 9**

steel sectional

description

Assembled by joining diminishing sections by welding process, water and airtight, of seamless pipe with tensile strength of 70,000 to 90,000 lbs. PSI. Flagpoles will withstand wind velocities up to 90 mi./hr. All joints are inconspicuous; no heavy swages of offsets. All joints made without bolts, pins, rivets, screw couplings or lead calking.

Field Joints: Having close telescoping fit at field joints, welding is necessary. After pushing sections together until they seat tightly, the erector makes 4 plug welds and fills in beveled edge by welding all around. See cut. Grind 4 plug welds and connecting weld smooth — see shop drawing.

Ship by truck in one piece up to 40', in many states, by railroad up to 60'

dimensions

exposed height, feet	setting depth, feet	total length, feet ¼" wall	diameter in inches			minimum of sections	pole & ground protector weight, bare
			butt	top	ball		
LIGHT PATTERN							
17	3	20	3½	2⅜	5	3	150
25	3½	28½	4	2⅜	5	4	256
33	4	37	4½	2⅜	6	4	365
41	4½	45½	5	2⅜	6	6	500
49½	4½	54	5⅝	2⅜	6	7	660
57½	5	62½	6⅝	2⅜	8	8	870
65½	6	71½	7⅝	2⅜	8	9	1130
73	6	79	7⅝	2⅜	8	9	1310
80	7	87	8⅝	2⅜	8	10	1630
90	8	98	9⅝	2⅜	10	11	2180
100	8	108	10¾	2⅜	10	12	2735
HEAVY PATTERN							
20	3	23	4	2⅞	5	3	214
25	3½	28½	4½	2⅞	5	4	307
30	3½	33½	5	2⅞	6	5	405
35	3½	38½	5	2⅞	6	5	480
40	4	44	5⅛	2⅞	6	6	617
45	4½	49½	5⅛	2⅞	6	6	687
50	5	55	6⅝	2⅞	7	7	914
60	6	66	7⅝	2⅞	8	8	1223
70	7	77	8⅝	2⅞	8	9	1606
75	7½	82½	9⅝	2⅞	10	10	1988
80	8	88	10¾	2⅞	10	11	2459
90	9	99	11¾	2⅞	10	12	3002
100	10	110	12¾	2⅞	12	13	3643
125	12	137	14	3½	14	13	5804

aluminum tilting

counter-balanced conical tapered

description

Aluminum flagpole machine tapered to form an uninterrupted exterior surface without visible joints or offsets. Furnished with complete tilting unit that can be operated by one man. Pole made from seamless aluminum tubing, 3/16" min. wall thickness, alloy No. 6063-T-6. Uniform conical taper of 1 inch every 5'6" throughout the tapered portion; machined to a satin brushed finish then heavily waxed.

Lightning Deflection Poles, federal or industrial requirements; War Memorials — Factories.

Shipping in one piece — without field joints — is preferred, unless the freight saving is substantial and offsets cost of field jointing, both in the shop and at the site.

Ship by truck in one piece up to 40' in many states, by railroad up to 60'

dimensions — ECONOMY TYPE (Aluminum Poles) Tilt

total exposed height, feet	diameter in inches			"A" base plate (square) inches thickness	"H" holes "on centers" inches	channel width inches	4 anchor bolts, diameter, length, inches,	tapered portion 3¼" wall	weights	
	butt	top	ball						pole only	tilting unit and weights
25	4½	2⅞	6	18 x ½	14	5	¾ x 16	9'	68	440
30	5	3¼	6	18 x ½	14	6	¾ x 16	9'8"	86	560
35	5½	3½	6	18 x ½	14	6	¾ x 16	11'	110	715
40	6	3½	8	20 x ½	16	7	¾ x 16	13'9"	140	875
45	7	3½	8	22 x ½	18	8	⅞ x 18	19'3"	190	1160
50	8	3½	10	24 x ½	20	9	⅞ x 18	24'9"	355	2040

dimensions — STANDARD

total exposed height, feet	diameter in inches			channel width in.	"A" base plate (square) inches	"H" hole centers	anchor bolts, diameter, length, inches	weight, pounds	
	butt	top	ball					bare pole	complete tilting arrangement
20	5	3¼	5	6	16 x ½	12	¾ x 15	70	350
25	5½	3½	6	6	18 x ½	14	¾ x 16	100	500
30	6	3½	6	7	20 x ½	16	¾ x 16	125	625
35	7	3½	6	8	22 x ½	16	¾ x 17	170	850
40	8	3½	8	9	24 x ½	20	⅞ x 17	225	1050
50	10	4	10	12	28 x ½	24	⅞ x 18	350	2100

b flagpoles 6g/Aa

- steel sectional
- tilting

• ground set

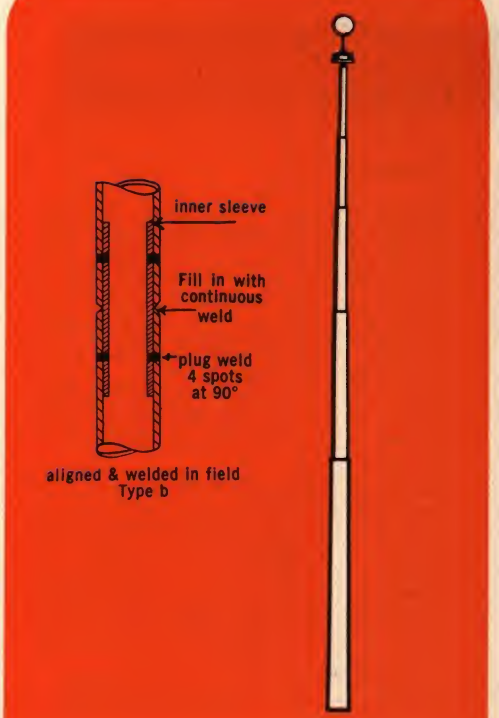
specifications

Furnish and erect, where shown on drawings or in specifications, a steel sectional flagpole, with all necessary fittings listed below, as manufactured by The Morgan-Francis Co., Inc., Route #1 at Expressway, Stratford, Conn. Flagpole to be ground set, ... feet exposed height, ... feet total length, the butt diameter ..... inches and the top diameter ..... inches.

STANDARD FITTINGS: Copy specification, pages 8 & 9 , for gold leaf ball, halyards, cleats, snaphooks, aluminum truck. For foundation assembly and bases, see pages 8 & 9

PAINTING: All steel parts shall receive in the shop a prime coat of red lead and oil, and finish and final coats of color specified by the architect. Foundation tube and all unexposed areas of pole shall receive a heavy shop coat of black asphaltum both inside and outside.

NOTE: Economy type weld-in-field joint for tapered or sectional poles. Drawing at right shows how the conventional field joint is easily assembled per instructions on shop drawings. This type, at lower cost, is recommended when transportation or budget is a problem. For field joints details if required and full assembly instructions, see Approved Shop Drawing furnished with each flagpole order.



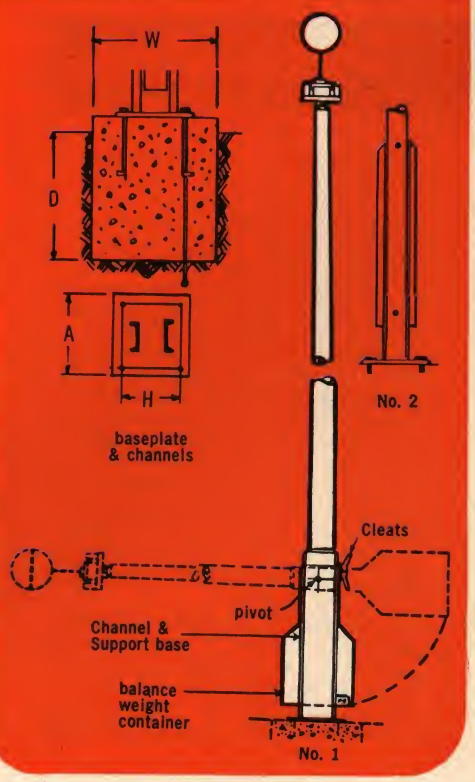
specifications

Furnish and erect, where shown on drawings or in specifications, a tilting, counter-balanced, tapered flagpole of seamless aluminum 6063-T-6 alloy x 3/16" wall with all standard fittings — aluminum ball, aluminum cleats, bronze flag snaps, halyards, aluminum truck (see Fittings, pages 8 & 9) as manufactured by the Morgan-Francis Co., Inc., Route #1 at Expressway, Stratford, Conn. Flagpole to be ..... feet exposed. The tapered portion shall be ..... feet ..... inches, the butt diameter ..... inches, and the top diameter ..... inches.

COUNTER-BALANCED ARRANGEMENT: Provide one complete standard tilting unit consisting of two upright channel irons, welded to base plate, with steel container to hold counter-weights securely, locking clips, anchor bolts (see Table at left for standard dimensions and specifications) and lightning grounding rod ¾" steel rod to be welded to one of the anchor bolts and extending downward to a minimum of one foot below concrete base. Tilting unit is so balanced that flagpole can be raised and lowered easily by one man after releasing locking clips. Type No. 1, No. 2 available.

FINISHING ON TILTING UNIT: Entire unit to receive in shop a primer coat of red lead and oil and first coat of final color as specified. (Usually two coats of aluminum or marine white.)

See detail illustrated at right.
"D" — Excavation depth: min. of 3'-0" or 10% of pole height on firm soil.
"W" — Square shape, min. of 10" wider than base plate.



outrigger

description

Tapered Aluminum, Steel, Bronze and Stainless Steel. Aluminum Alloy #6063-T6 x .188 wall with satin-brushed finish is recommended. Having less weight and maintenance requirement.

Standard Fittings: Acorn with Swivel Block or Truck to operate Halyards, fittings as selected from pages 8 and 9. Bases are of full strength castings in the metal selected. Bases project poles at a fixed angle of 45 degrees unless otherwise noted.

Bases are fitted with Anchor Bolts concealed by being installed thru wall from inside. When if wall construction prohibits this standard method — an additional plate ½" thick x 2" to 3" larger in all directions is added to the base (using same type metal). The Anchor Bolts are installed from face of Plate and to wall either using the Expansion Bolt method or to steel members in wall or thru wall to steel backing Plates.

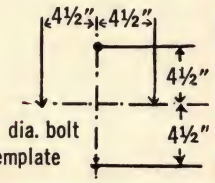
without braces **with braces**

OR-330



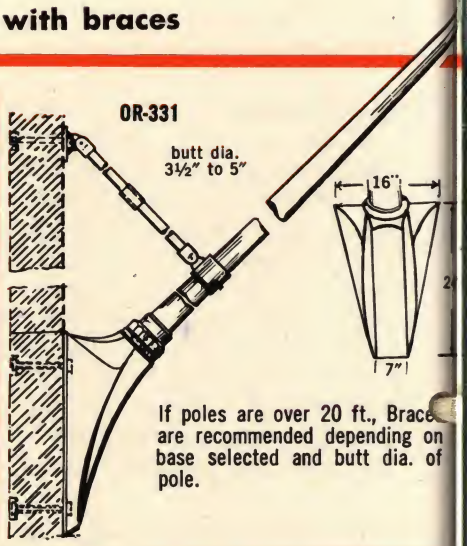
base 0-3381 ornamental 3½" to 5" O.D.

Bolt ¾" dia. Ferrule 1½" I.D.



Typical ¾" dia. bolt setting template

OR-331



If poles are over 20 ft., Brace are recommended depending on base selected and butt dia. of pole.

selection of finials



Truck, ball assembly



Aluminum ball with swivel block



Acorn and pulley block

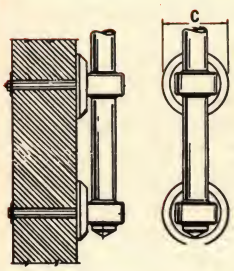
vertical

description

This line of Continuous Tapered wall mounted Aluminum flagpole is offered in standard lengths from 15 to 40 feet. The poles are of Cone Tapered construction, made of seamless aluminum, cold rolled with a uniform conical taper of 1" in every 5'6". The wall thickness is .188-in. throughout. Machined to a satin brush finish, then waxed, heavily paper wrapped and crated for shipment in one piece without field joints. No painting of the poles is required.

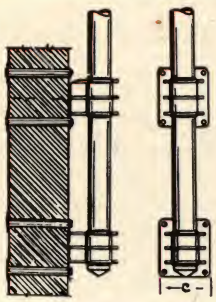
Supporting Brackets as shown in illustration are made of Heli-arc welded 6063-T6 aluminum for uniformity and strength. Electric welded steel brackets costing less are hot dipped galvanized after fabrication and painted if desired.

The standard Ferrule and Anchor Bolt requirement provides for installation security. Anchor Bolts are installed from face of Plate and to wall either using the Expansion Bolt method or to steel members in wall or thru wall to steel backing Plates.



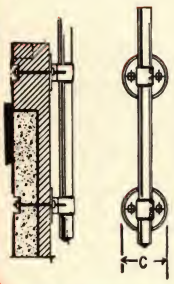
v-310
"C" bracket dimension

Pole Butt dia.	"C" Butt dia.
3" to 4½"	10"
5" to 6"	12"
6⅝" to 8"	14"



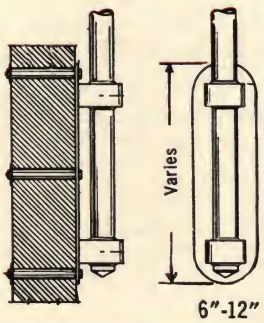
v-319
"C" dim. bracket dim.

Pole Butt dia.	Wall Plate Square
3" to 4"	10" x ⅜"
4½" to 6"	12" x ½"
6⅝" to 8"	14" x ½"



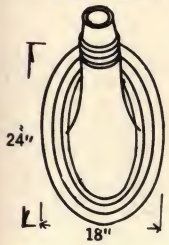
v-320
bracket dimensions

Pole Butt dia.	Wall Plate dia.
3" to 4"	10" x ⅜"
4½" to 6"	12" x ½"
6⅝" to 8"	14" x ½"

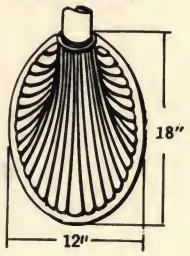


bases

Base No. OR-334
Pole butt dia. 5"



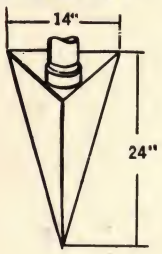
Base No. OR-439
Pole butt dia. 5"



Base No. OR-339
Pole butt dia. 5"



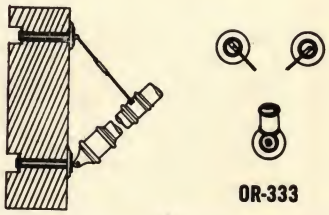
Base No. OR-337
Pole butt dia. 4"



dimensions

aluminum tapered	without braces		with braces		
Total length, ft.	8, 10, 12	15	20	25	28
Butt dia's. in	3½	4	4½	5	5
Top dia's. in.	2⅜	2⅜	2⅞	3¼	3¼
Tapered Portion ft.	6	9	9	9'8"	9'8"
Ball dia. if used, in.	5	5	6	6	6

Economy Design, for a lower cost installation or where wall structure prohibits use of the ornamental bases, the three (3) point suspension type using the standard Steel Anchor Bolts and Ferrules installed in wall.



OR-333

specifications:

Furnish and erect cone tapered aluminum Outrigger Flagpole. Total length ....ft. .... in., O.D. at Butt .... in., O.D. at top .... in. with No. ..... Mounting and Decorative No. ..... Base (state metal). Halyards, Swivel Flag-Snaps, Anchor bolts, nuts and washers. Finial as selected . . . Acorn and Swivel Block or Ball and Swivel Block, Ball and Truck.
Bases: Made in Aluminum, Bronze, Cast Iron. Finished: Satin-brushed or painted to match pole or wall.

All as made by Aabec Pole Division of The Morgan-Francis Co., Inc., Stratford, Conn.

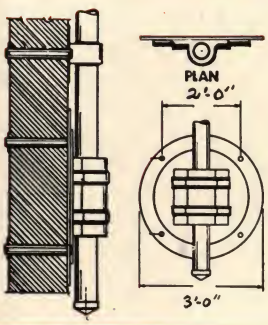
Outrigger Flagpoles are made in all tapered construction only in standardized lengths, diameters, wall thickness as shown in table and illustrations on this page.

Bolt Spacing: A "Setting Template" will be supplied with ferrules to ensure proper alignment with base pre-drilled holes.

Exact details on shop drawing

dimensions Tapered Aluminum.

overall length in feet	outside diameter in inches butt	top	ball	pole wall thickness	pole weight lbs.	tapered portion min.	cylindrical butt portion
15	4	2⅜	4	.188	35	9'0"	6'0"
20	4½	2⅞	5	.188	55	9'0"	11'0"
23	5	3¼	5	.188	80	9'8"	13'4"
28	5½	3½	6	.188	110	11'0"	17'0"
33½	6	3½	7	.188	140	13'9"	19'3"
38½	7	3½	7	.188	185	19'3"	19'3"
40	8	3½	8	.188	235	24'9"	19'3"



V-316

Special size for poles 30 ft. and higher or heavy steel poles

When poles over 30 ft. are used, especially in steel, it is advisable to use 3 brackets if engineer so estimates, depending on wall type and structure.

Bolt Spacing: A "Setting Template" will be supplied with ferrules to ensure proper alignment with base pre-drilled holes. Distance between top and bottom brackets—min. 10% pole length.

specifications:

Furnish and erect cone tapered Aluminum Vertical Flagpole complete with all the fittings, as listed. Flagpole to be Standard Type .... ft. overall; length, ... in. butt diameter to .... in. top diameter. The pole shall be machine-made of 6063-T6 Seamless aluminum, with a wall thickness of .188-in. and shall have a conical taper of 1" in each 5'6" throughout the tapered portion. The pole shall have a smooth uninterrupted exterior surface, shipped in one piece without field joints. Exterior satin-brushed finish, waxed. Standard fittings as selected from pages 8 and 9. One set of standard wall brackets. Design No. V-310, V-316, V-319, V-320 with Galvanized Steel Anchor bolts, nuts and washers.

For Steel Tapers Specifications see pages 2 and 3. Exact details on shop drawing

flagpole ornaments



We maintain a special department for the manufacture and the distribution of items known as "extras" or "specials" in the Flagpole trade. All characters are made of heavy copper hand wrought and are full-bodied for good appearance. Covered with genuine 23 karat goldleaf or with the natural copper antique finish. A separate Brochure is available with prices for the asking.



eagle and weathervane

Both or singly, made from heavy gauge copper sheet hand wrought. Eagle and balls covered with genuine 23 karat goldleaf. Vane and cardinal points in bronze. Wingspread in inches is 12" to 48" in 6" multiples, dependant on the pole height.



gold ball

20 ounce copper with genuine 23 karat goldleaf over three coats of waterproof paint and one coat of waterproof gold size. Mounted on ¾" brass tube over ⅝" diameter stainless steel rod. Thread fitted into Truck.

complete choice of finials

All characters full bodied of heavy copper, hand wrought. Horse, Rooster, Dog, Deer, Fish, Jockey on Horse, Horse Driver and Sulky, Bull, and many others in various sports. Please advise choice of antique or goldleaf finish. Quotations and literature on request.

aluminum ball

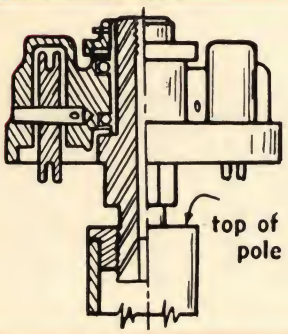


Spun from 14 gauge aluminum with watertight seams. With a satin-brushed and waxed finish. Mounted on ⅝" dia. dural rod threaded to fit truck.

flagpole fittings

REQUIRED STANDARD FOR ALL POLE INSTALLATIONS: Truck, ball, cleats, halyards, either 5/16" cotton braided or ⅜" manila rope, snap hooks.

We stock a complete assortment of fittings for replacement and repair.



truck assembly

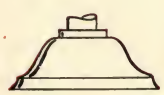
Cast iron, aluminum, bronze or stainless steel. Two sizes — for poles with top diameters up to 3½", and over 4". ¼" and 5/16" diameter stainless steel ball bearings give free non-fouling revolving action rotating on upper and lower ball bearing machined in races. Two sheaves machined from cast aluminum, iron or bronze as selected rotate on ⅜" diameter stainless steel rod bearings. Truck thread fitted for supporting eagle, ball, weathervane, other finials.

ornamental bases

For ground set installations where handsome appearance is paramount, Morgan-Francis offers a full, varied line of flash collars and base covers. Carefully cast or shaped in aluminum, iron or bronze, these durable decorative bases include both classical and contemporary designs. Sizes are available to fit the butt diameters and over ground tubes of every standard Morgan-Francis flagpole.

Aluminum Satin-Brushed finish or painted, plated as required.

MF No. 3001



Butt dia. 5" to 9"

MF No. 3002



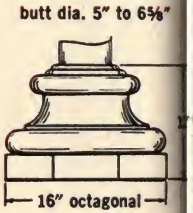
Butt dia. 5⅝" to 8⅝"

MF No. 3330



5½" to 12"

MF No. 3333



foundations

construction Specifications for tube installation—All Ground-Set Poles

A Calking: For a moisture seal, waterproof type calking is applied approximately 2" deep around pole and between bases or collars.

B Flash Collar: Often used for appearance and added weather protection of pole base area.

C See pages 6 and 7 for selection of standard decorative bases (at extra cost).

D Top Diameter of Excavation: To be approximately 5 times pole butt diameter.

E Base Height: Above grade, usually 1" to 2" or as specified by architect.

F Pitch for Base: ½" to 1".

G Grout Cap: 1-2 mix. Added for a fine top finish. Marble, stone or special bases can be substituted as specified by architect.

H Wood Wedges: Temporary. 4 used around pole when centering.

J Concrete Mix: 1-2-4 Formula, complete in one pour.

K Sand: Screened and dry. Tamp in.

L Centering Wedges: 3/16" or ¼" steel, tapered — for pole centering and to complete grounding connection. Welded to plate and inside of tube.

M Rest Plate: ⅜" to ½" steel plate welded to grounding spike. Set on firm soil to support tube when pouring concrete base. Size: (square) approx. 50% of Tube "Q".

N Bottom Diameter of Excavation: To be approximately 4 times pole butt diameter.

P Ground Protector. Next pipe size, standard on steel poles. At 12" above and 6" below grade there is a continuous weld at both places. For Aluminum poles, extra cost.

Q Tube: 16 gauge minimum galvanized corrugated steel. Minimum to be 10% of overall pole length. Length to be no less than 3 ft. and minimum of 10% of long poles overall length.

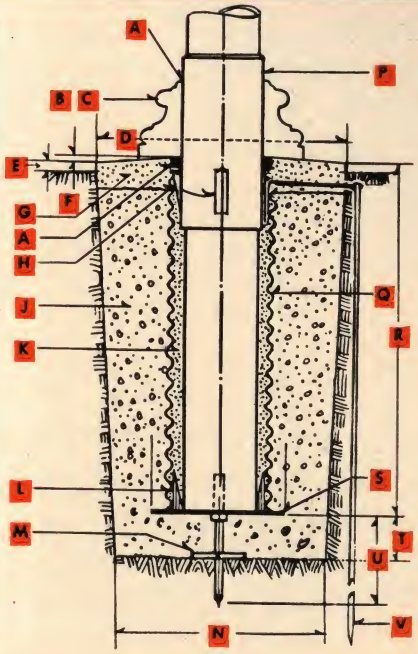
R Full Excavation Depth: One ft. plus Foundation Tube "Q".

S Tube Support Plate: ⅜" or ½" steel plate. Approx. 3"-4" larger (square) than Foundation Tube Dia.

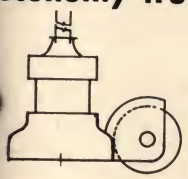
T Foundation Tube Footing: 1 ft. min. for best concrete in one pour.

U Grounding Spike: ¾" diameter x 3'0" steel rod welded to center of tube support plate, and to rest plate at bottom of footing. min. of 3 ft. max of 5 ft.

V Special grounding when the standard is not applicable or deeper grounding required. At extra cost. ¾" x 10' standard

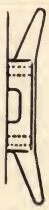


economy truck type



(Revolving) Single or double sheaved — fits all pole top diameters. Made in cast iron, aluminum or bronze. Equipped with stainless steel ball bearings.

cleats



9" long. Each cast in aluminum, bronze or iron,

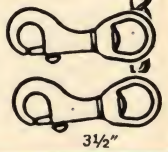
cleat covers

Cast aluminum with 2 hinges, hasp and staple of galvanized heavy steel and padlock.



flag snaps

Swivel type, forged bronze or chrome plated steel.
2 per halyard.



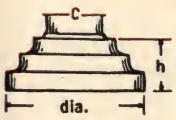
halyards



Standards are either ⅝" dia. U.S. Grade #1 Manilla Fibre Rope or 5/16" dia. Braided Cotton with invisible Connectors for a continuous Halyard.

Dacron and Nylon also used for long life and strength plus appearance.

If local vandalism a factor possibly a metal centered fabric or plastic. Also suggest Stainless Steel or Galvanized Flexible Steel Cable.



MF No. 3346
dia. 14"—H—8"
c—4" to 6⅝"

MF No. 3348
dia. 19"—H—7"
c—6" to 9"

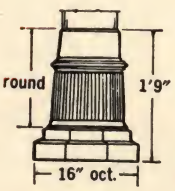
MF No. 3349



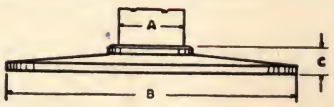
24" Diameter

9" Height
6" to 10"
Butt dia.

MF No. 3360

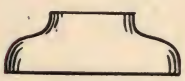


6" to 8⅝"



	A	B	C
MF No. 3361	5" to 8⅝"	22" dia.	3½"
MF No. 3362	5" to 8⅝"	30" dia.	3½"
MF No. 3363	6" to 12¾"	38" dia.	3½"
MF No. 3364	8" to 16"	46" dia.	3½"

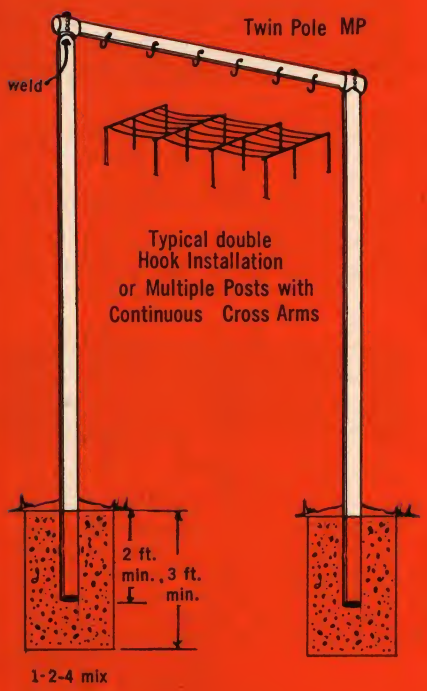
MF No. 335



Standard Flash Collar, in steel, & aluminum to fit all pole butt diameters and over foundation sleeve.

line dryer poles





description:

All Steel, Heavy Wall Tubular and Pipe Electric Arc Welded Construction, Hooks bolted or welded as selected, made sturdily for rugged outdoor use. Note selection of Hooks and different spacings. If necessary for area restrictions various other cross arm and upright lengths and hook spacings can be used. Consult our engineering department for layout details.

specifications:

Please order where called for on plans, ... T-Pole Line Dryer Pole TP No. . ..... or Multiple Posts with Continuous Cross Arms—MP No. .... or Twin Pole MP No. ..... Indicate quantity ..... single hook, ... double hook. All cross arm caps to press fit after hot dipped galvanized. All hooks 5/16" dia.

As Manufactured by Aabec Pole Division of the Morgan-Francis Co., Inc.

standard — dimension table

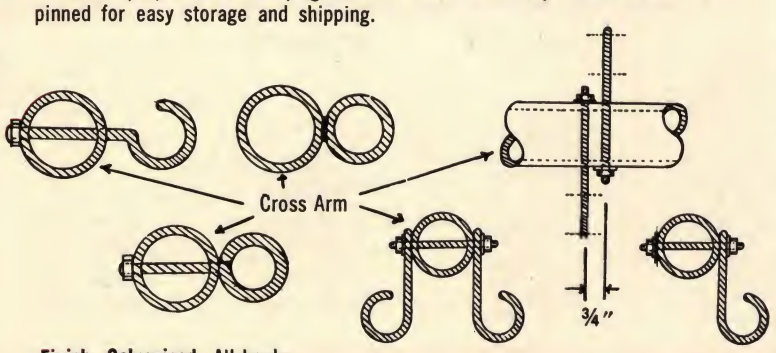
model no.	uprights			crossarm			hooks		setting in concrete depth
	length	o.d.	wall	length	o.d.	wall	quant.	spacing	
CT-765-1	7'6"	1.9"	.145"	38"	1.380"	.140"	4	12"	2'0"
CT-765-2	7'6"	1.9"	.145"	44"	1.380"	.140"	6	7"	2'0"
CT-765-3	7'6"	1.9"	.145"	54"	1.380"	.140"	3	18"	2'0"
CT-766-1	9'0"	2.375"	.154"	50"	1.90"	.145"	5	12"	2'6"
CT-766-2	9'0"	2.375"	.154"	56"	1.90"	.145"	7	9"	2'6"
CT-766-3	9'0"	2.375"	.154"	74"	1.90"	.145"	4	18"	2'6"
CT-767-1	9'0"	2.87"	.203"	50"	1.90"	.145"	5	12"	2'6"
CT-767-2	9'0"	2.87"	.203"	60"	1.90"	.145"	9	7"	2'6"
CT-767-3	9'0"	2.87"	.203"	74"	1.90"	.145"	4	18"	2'6"
CT-768-1	9'0"	3.500"	.216"	62"	2.375"	.154"	6	12"	2'6"
CT-768-2	9'0"	3.500"	.216"	74"	2.375"	.154"	8	8"	2'6"
CT-768-3	9'0"	3.500"	.216"	92"	2.375"	.154"	5	18"	2'6"
CT-769-1	9'6"	4.00"	.226"	62"	2.375"	.154"	6	12"	3'0"
CT-769-2	9'6"	4.00"	.226"	74"	2.375"	.154"	8	8"	3'0"
CT-769-3	9'6"	4.00"	.226"	92"	2.375"	.154"	5	18"	3'0"

twin pole and multiple posts with Continuous Cross Arms

	uprights 2 or more as required			crossarm—1 or more			hooks single or double spacing min.	setting in concrete depth
	length	o.d.	wall	suggested length ft.	o.d.	wall		
MP 665	8'2"	1.9"	1.40"	5-7	1.380"	.140"	18"	2'0'
MP 666	9'0"	2.375"	1.54"	6-8	1.9"	.145"	15"	2½'
MP 667	9'0"	2.875"	2.03"	7-9	2.375"	.154"	12"	2½'
MP 668	9'0"	3.500"	2.16"	8-10	2.375"	.154"	10"	2½'
MP 669	9'6"	4.00"	2.26"	9-12	2.875"	.203"	8"	2½'

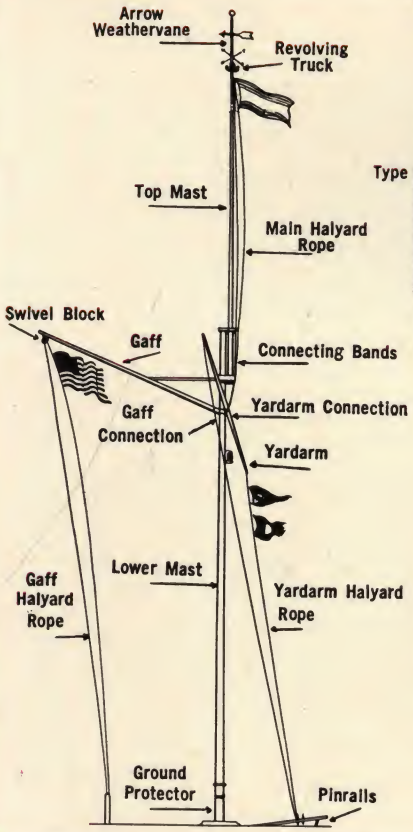
Finish: Hot Dipped Galvanized after all fabrication.

Note: 3, 4, 5, 6 or more uprights, with hook arms slip fitted and pinned for easy storage and shipping.



Finish: Galvanized, All hooks

nautical flagpoles



dimensions, heavy type

	exposed height assembled	overall assembled length	top mast exposed tip dia. 3¼"	butt dia. ¼" wall	lower mast exposed length	butt dia. ¼" wall	top dia. ¼" wall	yardarm tapered 3/16 to ¼" wall length	yardarm center & end dia.	yardarm tapered 3/16" wall length	Gaff butt dia.	Gaff top dia.	Shipping weight lbs.
Type N-1	40′	44′	14′	4½"	26′	5 5/16"	4½"	11′	3½-2½"	7′6"	2 7/8"	2 3/8"	1011
N-2	45′	49½′	16′	5"	29′	6"	5"	12′	4-2 7/8"	8′	2 7/8"	2 3/8"	1215
N-3	50′	55′	18′	5 5/16"	32′	6 5/8"	5 5/16"	13′6"	4½-2 7/8"	9′	3"	2 3/8"	1509
N-4	55′	60½′	19′9"	5 5/16"	35′3"	6 5/8"	5 5/16"	15′	4½-2 7/8"	10′	3½"	2 7/8"	1620
N-5	60′	66′	21′6"	6"	38′6"	7 5/8"	6"	16′6"	5-3"	11′	4"	2 7/8"	2042
N-6	65′	71½′	23′6"	6"	41′6"	7 5/8"	6"	17′6"	5-3"	12′	4"	2 7/8"	2240
N-7	70′	77′	25′	6"	45′	8 5/8"	6"	19′	5-3"	13′	4"	2 7/8"	2560
N-8	75′	82½′	27′	6 5/8"	48′	9 5/8"	6 5/8"	20′6"	5 5/16-3"	14′	4½"	3"	3160

Note: The economy design, welded sectionally, tapered steel, dimensioned approx. same 10% lighter weight and costs.

description:

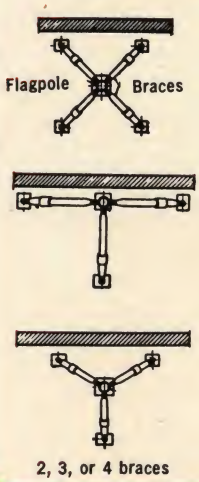
A Special Pole made particularly for display of more than two flags and special pennants, Insignias for Yacht Clubs, Marinas, Swimming Pools, Boating Clubs, Coast Guard, Naval and Marine Bases and private seashore or lakeside homes, buildings or clubs near water.
For Standard Fittings: pages 8 and 9.

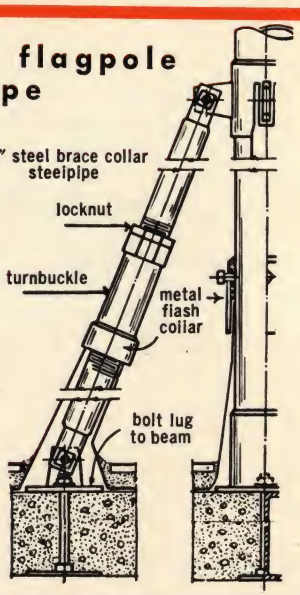
NOTE: If extra pennants and flags used, additional Halyards and Cleats are required. Weathervanes usually used—see pages 8 and 9. Finish: steel parts receive a prime coat of red lead and oil with two coats of Marine white paint. Hot dip galvanized finish suggested in salt water areas.

specifications:

Furnish where shown on plans, a Type No. ....., ... feet high, (Welded Sectional) or (Cone Tapered) steel double-mast nautical type flagpole, complete with yardarm, gaff and all other equipment. Pole shall have an assembled exposed height above ground of .... feet. The yardarm shall be .... feet. The Gaff shall be .... feet. All as made by Aabec Pole Division of The Morgan-Francis Co., Inc.

above roof flagpole —braced type



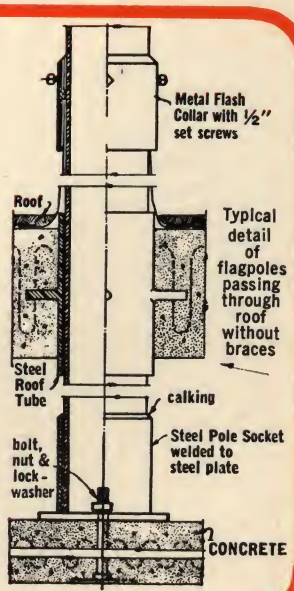


description:

Roof set Flagpoles are the same as ground set in all details except the setting arrangements. Roof set Installations are up to 50 ft. for steel and aluminum poles. Dim. table on pages 2, 3, 4 and 5. Tilting Poles as shown on page 5 may be set up for easy maintenance if so desired. See cut of typical Corner Braces for proper support on roof top. Poles may also be anchored through roof without braces. Any poles over 50 ft. should be supported through the roof to a floor or steel members of equal stability.

specifications:

Pole specifications are same as Ground Set on pages 2 and 3. Provide and erect where shown on plans. One ..... Cone Tapered Aluminum or One ..... Cone Tapered Steel Flagpole, ... overall length, 2, 3, or 4 Brace struts ..... special supp. ..... Butt dia. ..... top dia. ..... braces. (Indicate 2-3 or special.) Complete with fittings as selected from pages 8 and 9.



maintenance

ALUMINUM FLAGPOLES have a heavily waxed, over satin brushed and polished finish that needs no maintenance.

STEEL POLES should be repainted when they become shabby or rust spots appear; before the selected color is applied, wire-brush any rusted areas and prime with red lead.

HALYARDS should be replaced before they break—when they show signs of wear. Carefully fabricated TRUCKS seldom require repair. If a replacement required for BALLS, EAGLES, other FINIALS, we stock all items for replacement.

erection

The installation of a Morgan-Francis flagpole will be completed most rapidly and efficiently by using truck or mobile unit with crane and boom, or a gin pole with rigging for hoisting heavy equipment. For best results, the job should be handled by erectors with flagpole or related experience and a reputation for careful work.

engineering service

If special design or construction required by our Engineering Department to meet certain required conditions. Upon receipt of rough sketches or detailed information regarding the contemplated construction, this department will be at your service to design the construction, foundation and equipment to lend beauty, durability and strength to your individual requirements. NOTE: It is our standard practice upon receipt of purchase order to issue the required amount of shop drawings detailing all items relative to the purchase for the approval of your architect or engineer.

estimating

If a problem of budgeting we will also submit our recommendations for the allowance named along with the data relative to building size, purpose and etc.

partial list of national installations:

FLAGPOLES: Ground Set

Elementary Schools
Lakeland, Fla.

St. John's Lutheran Church
South Bend, Ind.

Todd Building
Roseburg, Oregon

Connecticut Expressway
(see cover)
State of Conn. (46 Poles)

Nike Batteries, Installations
U.S. Army
Mass., R.I., N.Y., N.J., Conn., Pa.

Loveman's Shopping Center
Oak Ridge, Tenn.

West Leyden High School
North Lake, Ill.

Pratt & Whitney Aircraft
Hartford, Conn.

Hudgins Corp.
Norfolk, Va.

Adell Chemical Corp.
Holyoke, Mass.

Bethlehem Plant
Hanover, Pa.

Line Dryer Poles
Washington, D.C., Syracuse, N.Y., New Haven, Conn., New Britain, Conn., Baltimore, Md.

Police Barracks
Buffalo and Tarrytown, N.Y.

Sheraton-Binghamton Hotel (3)
Binghamton, N.Y.

New England States Exposition Grounds
Springfield, Mass.

antenna poles

SELF SUPPORTING, Steel (NO GUY WIRES), Ground Set or Roof Set. Wind loading up to 150 MPH.

Description: A permanent Self Supporting Tubular (Fabricated from plate by special process). Erection without Guy Wires allows for easy erection in confined areas where use of guy wires would be either impossible or price would be prohibitive.

TYPE "A": Manufactured in "SLIP-FIT" self aligning tapered tubular sections telescopically fitted, shop fitted to eliminate field welding. Exact details on shop drawing

TYPE "B": The Economy type made of seamless steel pipe and tubular sections telescopically with self aligning field joints, welded at site per supplied shop drawings.

Wiring: Outside is recommended but inside wiring can be successfully arranged. Special or standard fittings supplied with quotations.

Heights: Made in 25 ft. to 200 ft. Butt diameters from 4" to 18" Anchorage. The most practical method is by Steel Anchor Bolts of proper diameter and length embedded into standard concrete bases designed for each height and weight. When erection facilities and area permits the "Direct-Burial" Economy type base installation is used.

Correct base depth and Anchor Bolt dimensional data sent (when exact soil condition known) so proper support is ensured.

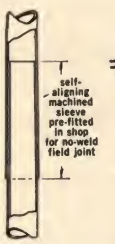
Accessibility: Steps ⅝" diameter either welded on pole or threaded into special lugs welded on pole, for safe access to any antenna. Often on request special working platforms installed on pole for group antenna maintenance.
Retractable Arms to 6 ft. are also installed to allow for maintenance on Multiple Antennas.

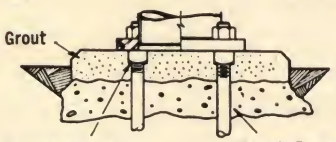
Beacon Lights: As required by Airport Code.

Painting: Red lead primer inside and out on tapered poles. Final coats of colors as specified by purchaser (usually red and white). Shipping Sections: 25 ft. to 35 ft.

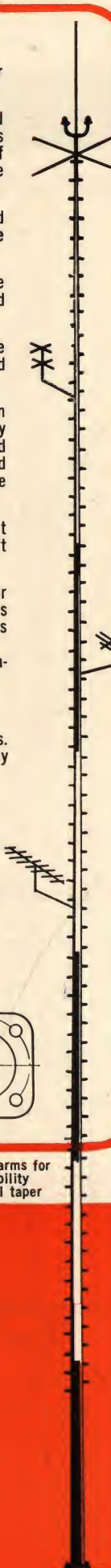
design information – tapered

height of pole	center of gravity	size of anchor bolt
25′	10′-9″	1″ x 40″
50′	16′-6″	1½″ x 60″
75′	24′-6″	1¾″ x 60″
100′	30′-0″	2¼″ x 80″
120′	35′-9″	2½″ x 120″
147½′	41′-0″	3″ x 120″
175′	47′-0″	3″ x 120″
190′	51′-3″	3″ x 120″
200′	53′-0″	3″ x 120″









Aabec Pole Division of

THE MORGAN-FRANCIS CO., Inc.

Route #1 at Expressway
(on Ferry Blvd.)
Stratford, Connecticut

Telephone
DRexel 8-2664
DRexel 8-2665

TOP-POLE ORNAMENTS AND FINIALS

For use in top decoration of Flagpoles, Sign Poles on Lawns, Dens, Club Rooms, etc., see description and cuts on pages 8 and 9.



since 1897. . . . .

LINGO

steel
aluminum
stainless steel
bronze

catalog no. 60

flagpoles

Acme Flagpole Division

JOHN E. LINGO & SON · INC.

flagpoles by LINGO



1897



1927



1960

since 1897

the company

Acme Flagpole Division and Ajax Antenna Division are departments of John E. Lingo & Son, Inc., established 1897 at Camden, New Jersey in the hub of the famous industrial Delaware Valley, U.S.A. During 63 years of pole manufacturing experience, passed from father to son through four generations under the same family ownership and management, the Corporation has achieved an enviable reputation for high quality products and exceptional service. Tubular poles have been made for every conceivable type of installation and a wide variety of metals has been used. We have pioneered in developing many outstanding improvements and are responsible for most of the modern refinements in metal pole construction. Thousands of installations have been made and our products are in service in every State of the Union, all of the U. S. Possessions, and in over 60 foreign countries embracing every Continent.

quality of materials

New material only of the highest quality is used in the manufacture of every Lingo flagpole. All flagpoles and fittings are furnished to our exacting standards and no deviations are made in quality to attain lower cost. You are guaranteed that all pipe or tubing is new, full-weight and mill tested. Mill certificates or affidavits can be furnished whenever requested. The steel pipe or tubing utilized is seamless, furnished to us since 1921 by the National Tube Division of United States Steel Company, and has a tensile strength from 70,000 to 90,000 lbs. per sq. in.—considerably more than the tensile strength of ordinary steel pipe. The aluminum pipe or tubing used is also seamless, made by Alcoa, Kaiser & Reynolds. The seamless pipe and tubing has a perfectly smooth exterior surface, free from roll marks, and without welded seams. Your selection of a Lingo flagpole assures a high quality product designed by pioneer manufacturers and constructed by Union mechanics of long specialized experience.

facilities

We have the largest plant in America specializing in the manufacture of flagpoles and fittings. Lingo is noted for its ability to produce highest quality metal flagpoles in the quickest possible time, regardless of height, diameter, or quantity. Under normal conditions, most sizes are carried in stock assuring immediate shipment. To produce genuine hydraulically bell-die swaged sectional steel flagpoles requires the use of an especially designed hydraulic swaging machine. Among the flagpole specialists, Lingo is the only manufacturer operating a bell-die swaging machine. Other products manufactured include antennas, antenna supporting masts, ship spars, lightning protection masts, etc.

service to architects and engineers

We want you to share the wealth of knowledge acquired by our 63 years of specialized experience by giving us the opportunity to study any problem you may have involving the use of tubular metal poles for any purpose. Our engineering staff will gladly prepare suggested details and specifications for flagpoles or antenna masts, etc., including cost estimates, all without charge or obligation on your part. Before specifying, if you will merely send a sketch of your contemplated installation, we will be pleased to make recommendations and offer valuable assistance to you in designing the best suited pole within your budget. Free consultation and advice on unusual pole problems are yours for the asking.

a LINGO *flagpole for every requirement*

6g
Ac

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VERTICAL WALL SET FLAGPOLES	section 2
OUTRIGGER FLAGPOLES UNBRACED AND BRACED	section 3
ROOF SET FLAGPOLES	section 4



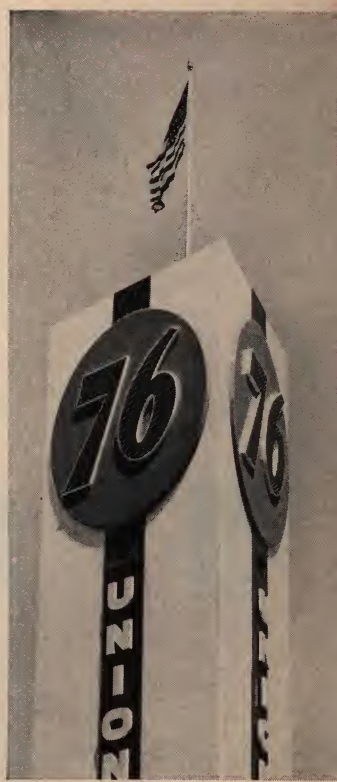
GROUND SET FLAGPOLES



VERTICAL WALL SET FLAGPOLES



OUTRIGGER FLAGPOLES



ROOF SET FLAGPOLES

Acme Flagpole Division

JOHN E. LINGO & SON • INC.



a — CONE TAPERED STEEL
The popular smooth surface flagpole

b — SWAGED SECTIONAL STEEL
The standard low cost flagpole

c — VENETIAN ENTASIS TAPERED
The ultimate in flagpole design

d — CONE TAPERED ALUMINUM
The modern low maintenance flagpole

e — CONE TAPERED ALUMINUM
with equipoise counter balanced tilting unit

a CONE TAPERED STEEL

These Popular Smooth Surface Flagpoles are machine-made, having an uninterrupted exterior surface throughout without offsets and resemble finished wood flagpoles in appearance. The tapered portion has ¼-in. minimum wall thickness with a UNIFORM CONICAL TAPER of approximately 1-in. in every 7.14 feet. The cylindrical butt portion is standard seamless steel pipe, having a wall thickness from ¼-in. to ½-in. depending upon diameter. Cone Tapered Steel Flagpoles should not be confused with our genuine Venetian Entasis tapered poles which have a curved taper or architectural entasis.

b SWAGED SECTIONAL STEEL

These Standard Low Cost Flagpoles are fabricated in consecutively diminishing sections of new, standard, full weight, seamless steel pipe with swaged-shrunk and telescoped joints. All joints are made without use of pins, bolts, rivets, screw couplings or lead calking. Poles over 30 feet in overall length are usually shipped in sections with telescoping field joints in order to obtain lowest possible freight cost. NO FIELD WELDING IS NECESSARY.

c VENETIAN ENTASIS TAPERED

These special made flagpoles are the ultimate in flagpole design and are produced in steel, stainless steel and bronze. They have a smooth uninterrupted exterior surface throughout without joints or offsets and HAVE A CURVED TAPER OR ARCHITECTURAL ENTASIS. These poles are especially suitable for memorials, monuments and all buildings of exceptional architectural value where an unusual flagpole installation is desired to properly harmonize with the outstanding design of the project.

d CONE TAPERED ALUMINUM

These Modern Low Maintenance Flagpoles are machine-made of Alcoa 6063-T6 seamless cold drawn aluminum having smooth uninterrupted exterior surface throughout. Tapered portion has UNIFORM CONICAL TAPER of approximately 1-in. in every 5.5 feet and pole has wall thickness from .188-in. to .250-in. depending upon diameter. Poles have satin brush finish, waxed, and no painting is recommended or required. Occasional halyard rope replacement is only maintenance cost.

e CONE TAPERED ALUMINUMTILTING

These flagpoles are the same as our stationary, non-tilting cone tapered aluminum flagpoles except that the pole is equipped with an all-steel "Equipoise" counter-balanced tilting unit. They can be speedily lowered and raised by one man whenever necessary. The tilting poles are more costly than stationary poles and are recommended only for installation at sites where experienced flagpole climbers or steeplejacks cannot be readily obtained to replace broken halyard rope.

facts regarding types of tapered flagpoles

Architects have become so confused, as the result of inconsistencies in advertising by flagpole manufacturers, that we devote this space to the facts concerning the development of tapered metal flagpoles, so that the Architect will have a clearer understanding as to the various types.

In 1912 the first smooth surface tapered steel flagpole was constructed utilizing standard steel pipe in the straight cylindrical butt portion and surmounted by a conical or straight tapered portion made from steel plates, rolled to circular shape, longitudinally welded and joined together by circumferential welds. These poles were called Continuous Taper Welded Flagpoles to denote the smooth exterior surface, the method of manufacture and to differentiate from Swaged Sectional flagpoles. Rolling facilities first limited the pole top diameter to large proportions but smaller top diameters were finally attained by decreasing the thickness of the rolled plate. Conicality in the tapered portion was initially produced, but as many Architects preferred a curved convex taper, the conical or straight taper was soon abandoned and the Venetian Entasis taper developed. The poles were purposely tapered through the upper approximately ⅔ only of the exposed length to provide greater strength and to overcome the optical illusion of central diminution often observed in a pole tapering throughout the entire exposed length. However, the rolled plates in the tapered portion were difficult to form to a reasonably round shape and the relatively light wall thickness was inadequate for long life with complete safety.

To overcome these obstacles we perfected in 1923 and later patented a greatly improved method of manufacturing tapered poles in various metals whereby the use of rolled plate construction would be avoided, the entire pole would be made with a heavy wall thickness equal to standard pipe and adequate roundness would be assured. These poles when first advertised were known as Continuous Tapered Flagpoles to indicate no visible joints or offsets and had a curved taper in the tapered portion. The same approximately ⅓ straight cylindrical butt portion was provided and the taper was in the upper approximately ⅔ of the pole. This tapering method is still employed by us in the production of Genuine Venetian Entasis Tapered Flagpoles in steel, stainless steel and bronze.

In 1936 we first introduced to Architects a new line of machine-made, lower cost, tapered steel flagpoles each having a seamless steel cylindrical butt portion with wall thickness corresponding to standard pipe surmounted by a conical tapered (straight tapered) steel portion having a minimum wall thickness of ¼-in. and a uniform taper of approximately 1" in each 7.14 feet. They were initially presented as Continuous Straight Tapered Steel Flagpoles to describe the type of taper in the tapered portion but have since been more briefly titled Cone Tapered Steel Flagpoles.

Another line of Cone Tapered Aluminum Flagpoles was initiated by us in 1950. These poles are of machine-made, all-seamless aluminum construction with a wall thickness from .188-in. to .250-in. depending upon diameter and the conical tapered (straight tapered) portion has a uniform taper of approximately 1" in each 5.5 feet.

In summary, conventional Continuous Tapered flagpoles are those made with a smooth uninterrupted exterior surface throughout, without graduations or offsets, each comprising a straight cylindrical butt portion surmounted by a tapered portion which has either one of two different types of taper: 1. A uniform straight conical taper such as in Cone Tapered, Conical Tapered and Continuous Straight Tapered flagpoles, all of which are identical. A true Conical Tapered pole, as the name implies, cannot have a curved taper or architectural entasis. 2. A non-uniform curved taper such as in genuine Venetian Entasis Tapered flagpoles or in any pole that actually tapers with architectural entasis. Entasis tapered poles cannot have a conical or straight taper.



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important notice

This catalog has been prepared especially for Architects, Engineers and flagpole purchasers with the intent that it will be the most informative, dependable, honest and complete guide of its kind in the field.

Full specifications are given. There are no deliberate omissions! All tables of dimensions and specifications give complete pertinent information. The various types of flagpoles are properly titled, illustrated and described. There are no misnomers! Exact pole wall thicknesses, properly calculated tapered portions, etc. are shown. There are no intentional missing dimensions or purposeful specification deletions! All designs have been carefully developed and are equal to or above the minimum consistent with good engineering practice. The products are made precisely as advertised. There is no deception or misrepresentation! All shipping weights shown have been carefully estimated, proven by actual shipments and represent the correct weights. The basic steel and aluminum used in our flagpoles are made principally by U.S. Steel, Alcoa, Kaiser and Reynolds who have no subsidiaries in the flagpole field and are not combined with any flagpole manufacturer.





All material used in Lingo Flagpoles is guaranteed to be new, unused, mill-tested and of recent manufacture. We will gladly ship any of our steel flagpoles with a shop coat of transparent varnish applied to permit visual inspection in the field for quality of material furnished and will always permit the Architect's representative to shop inspect and physically analyze the material during fabrication. Our steel flagpoles are shipped without a plate seal at bottom which permits interior inspection of pole in the field.

It pays to know the manufacturer before specifying! "LINGO" Flagpoles are the universally recognized standard where high quality is desired. Inherent in our products are 63 years experience, manufacturing integrity and ethical business methods. We will allow no compromise in materials, design and workmanship because we are interested in ultimate customer satisfaction, on quality before volume and complete honesty in all our dealings.

Architects and Engineers can specify with confidence if their choice is "LINGO" because they get the product made exactly as they have specified it. Emphasis is placed on prompt, courteous, highly-personalized service to your problem. If any question arises not covered herein, we suggest you consult us. You will get a quick intelligent answer.

section 1

LINGO
GROUND SET
flagpoles



100-ft. Genuine Venetian Entasis Tapered Standard Pattern Steel Flagpole
War Memorial, University of Pennsylvania, Philadelphia, Pa.
Architect: Grant M. Simon

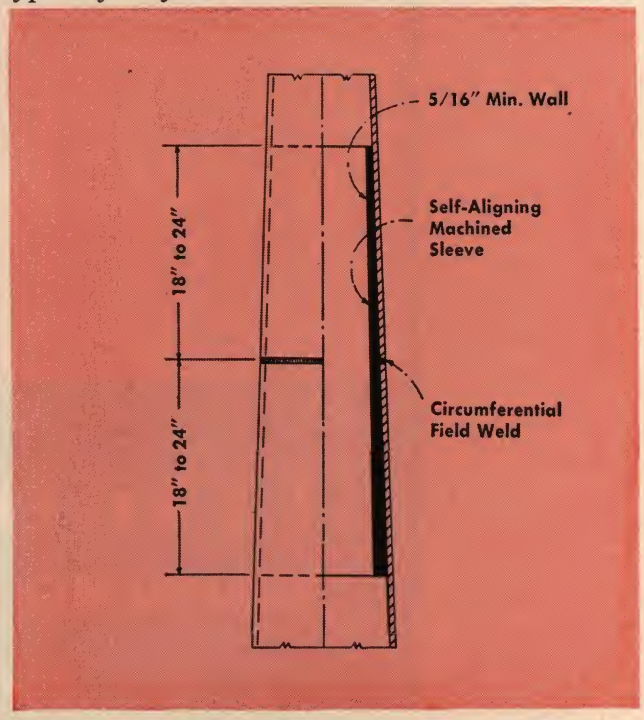
- CONE TAPERED STEEL
- SWAGED SECTIONAL STEEL
- VENETIAN ENTASIS TAPERED
- CONE TAPERED ALUMINUM
- CONE TAPERED ALUMINUM TILTING
- DOUBLE-MAST NAUTICAL TYPE
- FOUNDATION DETAILS
- MISCELLANEOUS FITTINGS

CONE TAPERED STEEL *flagpoles*

description

These MACHINE-MADE Continuous Straight Tapered steel flagpoles have a smooth uninterrupted exterior surface throughout, without visible joints or offsets. The ¼-in. minimum wall thickness tapered portion has a UNIFORM STRAIGHT LINE CONICAL TAPER (SEE ILLUSTRATION ON PAGE 5) of approximately 1-in. in every 7.14 feet, making a long graceful taper. The cylindrical butt portion is standard seamless steel pipe, having a wall thickness from ¼-in. to ½-in., depending upon the diameter. These machine-made Cone Tapered steel flagpoles are less costly and should not be confused with our genuine special-made Venetian Entasis Tapered poles described on page 12, which have an architectural entasis or curved taper. Cone Tapered poles are more costly than the Swaged Sectional steel poles shown on page 10. Cone Tapered steel poles up to 65 feet in length can be shipped via railroad freight in one piece without field joints but a substantial saving in freight cost is possible if poles over 40'6" long are shipped via motor freight in two pieces. In that case, pole is arranged with special designed internal splicing sleeve so that erector need only push the two sections together, weld a small circumferential pass around the joint and grind the weld smooth, making the field joint invisible. The seamless steel, machined-turned, precision-made, self-aligning internal splicing sleeve assures perfect field alignment and eliminates the necessity of field plug welds, aligning bolts, shims, etc.

typical field joint detail



note to specification writer

Whenever open specifications are required, insert "or equal" after our name in the specification, and add the following paragraph:

The articles furnished under these specifications shall be new, unused, of recent manufacture, and the product of a recognized reputable manufacturer specializing in flagpoles. The manufacturer must guarantee that all pipe and tubing is new, full weight and mill tested. The manufacturer, if required, must submit mill certificates or affidavits attesting to the use of new material; allow the pole to be shop inspected and physically analyzed during fabrication by the Architect's representative, and agree, if requested, to ship pole coated only with transparent varnish for field inspection.

specifications

Flagpole—Furnish and erect, where shown on plans, a cone tapered steel flagpole, complete with all standard fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. and install concrete foundation in accordance with their standard details. Flagpole to be ground set (Heavy Type) (Standard Type) (Superstandard Type) with . . . . feet exposed height above ground by . . . . feet total length. Outside diameter of pole butt shall be . . . . inches, tapered length shall be . . . . feet and outside diameter of pole top shall be . . . . inches.

Flagpole Construction—Tapered portion of flagpole shall have a wall thickness of not less than ¼-in. and the uniform conical taper shall be 1-in. in approximately every 7.14 ft. Cylindrical butt portion of pole shall be seamless steel and shall have wall thickness corresponding to standard full weight pipe. The joint between cylindrical butt and tapered portion shall not be discernible and pole shall have a smooth uninterrupted exterior surface throughout without visible joints or offsets. Flagpole shall be shipped in one piece without field joints, unless a substantial saving in freight cost is possible by a two piece shipment. If pole is shipped in two pieces a precision-made, self-aligning, seamless steel internal splicing sleeve must be provided for the field joint of a type requiring no plug welds, shims or bolts for field alignment. Sleeve shall be at

specifications (continued)

least 36 inches long extending 18 inches each side of section abutment. Portion of sleeve in top of lower shipping section shall be securely shop welded. Portion of sleeve extending into bottom of upper shipping section in field shall be machine-turned and self-aligning to provide snug fit. Minimum wall thickness of sleeve after machining shall be 5/16-in. After sections are pushed together in field a circumferential weld shall be made at the section abutment and weld shall be ground smooth to make field joint invisible. A field joint arrangement requiring field plug welds or bolts or shims for field alignment of pole sections will not be acceptable.

Flagpole Fittings—(Please copy specifications from page 26 for ball, truck, cleats, halyards and swivel snaps.)

Foundation Tube—Provide a steel foundation tube made of (16 ga. galvanized corrugated steel) (standard seamless steel pipe) of length and diameter for this size pole, in accordance with type (I) (II) (IIA) (III) of this manufacturer. Include painted welded steel bottom plate, lower steel-welded internal centering wedges, steel lightning ground spike and steel plate support, as detailed. Inside diameter of foundation tube shall be about 3-in. larger than outside butt diameter of flagpole.

Ground Protector—(To be omitted if metal base or flash collar is specified.) Provide a steel ground protector one pipe size larger than the butt diameter of the flagpole, extending 12-in. above ground and 6-in. below ground, shrunk to flagpole, and having neatly welded bevels at both ends.

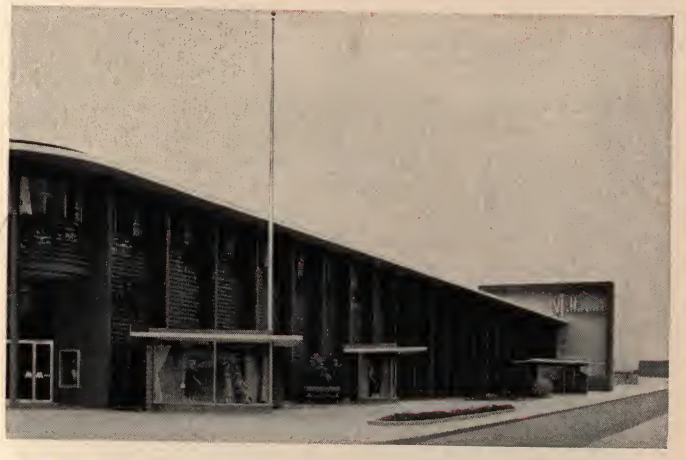
Painting—After fabricating pole, all exterior surfaces shall be thoroughly cleaned to bare metal and one shop coat of red lead and oil applied, followed by two field coats of white lead and oil.

Note: If metal base is desired (see pages 22 & 23), omit ground protector from specifications and indicate exact design number and metal of base required. For recommended foundation dimensions and types of foundation tube arrangements, please see pages 24 & 25.

dimensions

Exposed Height —ft.	Setting Depth —ft.	Total Length —ft.	Outside Diameter —inches			Weight—Pole & Ground Protector only —lbs.	Tapered Portion —ft.	Tapered Wall —in.	Cylindrical Butt —ft.	Cylindrical Wall —in.
			Butt	Top	Ball					
HEAVY TYPE										
25	3	28	5	3¼	5	395	12½	.250	15½	.247
30	3	33	5	3¼	6	460	12½	.250	20½	.247
35	3½	38½	5⅝	3¼	6	610	16½	.250	22	.258
40	4	44	6	3¼	6	730	19½	.250	24½	.250
50	5	55	6⅝	3¼	8	1040	24	.250	31	.280
60	6	66	7⅝	3¼	8	1435	31¼	.250	34¾	.301
70	7	77	8⅝	3¼	8	2125	38½	.250	38½	.322
75	7½	82½	9⅝	3¼	10	2460	45½	.250	37	.342
80	8	88	10¾	3¼	10	2850	53½	.250	34½	.365
90	9	99	11¾	3½	10	3550	58¾	.250	40¼	.375
100	10	110	12¾	3½	10	4300	66	.250	44	.375
STANDARD TYPE										
20	3	23	5	3¼	5	325	12½	.250	10½	.247
25	3	28	5⅝	3¼	6	425	16½	.250	11½	.258
30	3	33	6	3¼	6	530	19½	.250	13½	.250
35	3½	38½	6⅝	3¼	6	690	24	.250	14½	.280
40	4	44	7⅝	3¼	8	870	31¼	.250	12¾	.301
50	5	55	8⅝	3¼	8	1235	38½	.250	16½	.322
60	6	66	10¾	3¼	10	1890	53½	.250	12½	.365
70	7	77	11¾	3¼	10	2400	60½	.250	16½	.375
75	7½	82½	12¾	4	12	2850	62½	.250	20	.375
80	8	88	14	4	12	3475	71½	.250	16½	.500
90	9	99	14	4	14	4275	71½	.250	27½	.500
100	10	110	16	4	14	5000	85¾	.250	24¼	.500
SUPERSTANDARD TYPE										
30	3	33	6⅝	3¼	6	580	24	.250	9	.280
35	3½	38½	7⅝	3½	8	765	29½	.250	9	.301
40	4	44	8⅝	4	8	1025	33	.250	11	.322
45	4½	49½	9⅝	4½	8	1300	36½	.250	13	.342
50	5	55	10¾	5	10	1625	41	.250	14	.365
60	6	66	11¾	5½	10	2245	44½	.250	21½	.375
65	6½	71½	12¾	5½	12	2665	51¾	.250	19¾	.375
70	7	77	14	5½	12	3300	60¾	.250	16¼	.500
75	7½	82½	14	5½	14	3700	60¾	.250	21¾	.500
80	8	88	16	6	14	4150	71½	.250	16½	.500
90	9	99	18	6½	14	5100	82	.250	17	.500
100	10	110	20	6½	14	6600	96	.250	14	.500

typical installation



60-ft. High Standard Type Cone Tapered Steel Flagpole
Milliron's Dept. Store
Los Angeles, Calif.
Architects: Gruen & Krummerk, Victor Gruen, A.I.A. Hollywood

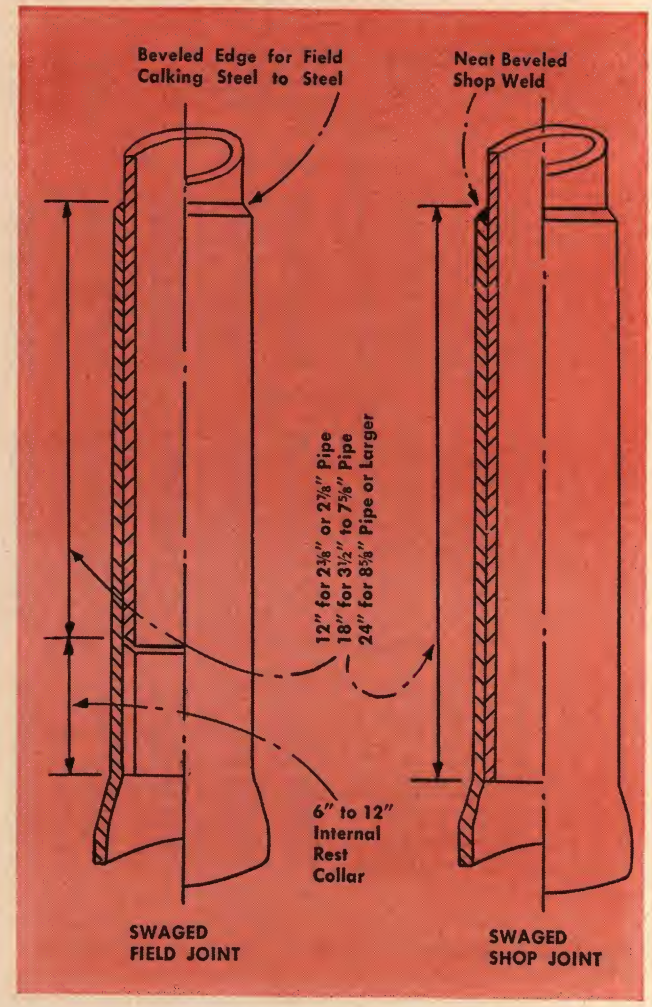


59-ft. High Superstandard Type Cone Tapered Steel Flagpole
The Chemstrand Corporation
Decatur, Alabama
Architects: Lockwood Greene Engineers, Inc., New York City

description

These flagpoles are fabricated by joining consecutive diminishing sections of new, standard, full-weight, "National" seamless steel pipe, having a tensile strength from 70,000 to 90,000 lbs. per sq. in., with joints either of the shop type (swaged-shrunk and telescoped) or of the field type (swaged, telescoped and self-aligning). The poles are designed to safely withstand wind velocities from 90 to 120 M.P.H. depending upon diameter pole selected. All shop and field joints are made without the use of bolts, pins, rivets, screw couplings, lead calking and field welding. All sections are genuinely, hydraulic bell-die swaged (not merely torch-cut, formed and welded) wherever the normal space between two standard pipe sections requires a reduction in the outside diameter of the outer pipe to provide a shrunk or close telescoping fit. These poles are usually shipped by motor freight in sections not exceeding 30 feet. When necessary to ship by railroad freight the shipping sections may be shorter than 30 feet in order to obtain the lowest possible freight cost or longer to reduce the number of shipping sections, depending upon length and weight of pole selected (see table of dimensions). FIELD WELDING IS NOT NECESSARY DUE TO CLOSE TELESCOPING FIT AT FIELD JOINTS. The erector merely pushes the sections together until they seat on the internal rest collars and then makes the field joints airtight and watertight by calking the beveled edge of the outer pipe with an ordinary hammer and calking chisel, the latter furnished by us. In fabricating our swaged sectional flagpoles we utilize all standard full-weight pipe sizes consecutively from top to bottom of pole having outside diameters as follows: 2⅜", 2⅞", 3½", 4", 4½", 5", 5⁹⁄₁₆", 6⅝", 7⅝", 8⅝", 9⅝", 10¾", 11¾", 12¾", 14" and 16". The latter two sizes have ½" wall. Note that the so-called "odd" standard sizes are included such as 4" OD, 5" OD, 7⅝" OD, 9⅝" OD and 11¾" OD. If any of these "odd" standard sizes are omitted, there are unsightly heavy swages or offsets between joints and the fewer pipe sections than standard result in longer individual pipe lengths, greater deflection characteristics and less bending resistance. By including these "odd" standard sizes in our swaged sectional flagpoles, the joints are inconspicuous and the poles have maximum rigidity and strength.

typical joint details



specifications

Flagpole—Furnish and erect, where shown on plans, a hydraulic bell-die swaged sectional steel flagpole, complete with all standard fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. and install concrete foundation in accordance with their standard details. Flagpole to be (Light Pattern) (Heavy Pattern) (Extra Heavy Pattern) with . . . . feet exposed height above ground by . . . . feet total length. The outside butt diameter of the pole shall be . . . . inches and the outside top diameter of the pole shall be . . . . inches. The pole shall be made in . . . . sections and shipped in . . . . pieces.

Flagpole Construction—Flagpole to be fabricated in sections of new, standard, full-weight, mill tested, seamless steel pipe. All joints shall be of the telescoping type, made without the use of bolts, pins, rivets, screw couplings and lead calking. All joints shall be genuinely die-swaged, where necessary, to produce close fit. Shop joints must be die-swaged or hot shrunk without inside bushings. Field joints must be die-swaged for close telescoping fit and self alignment of inserted section. Field joints must be of type requiring no field welding. Pole shall be made in consecutively diminishing sections of standard pipe without omitting "odd" standard pipe sizes. All joints must be as inconspicuous as possible and heavy swages or offsets, resulting from the omission of "odd" standard pipe sizes, will not be permitted.

specifications (continued)

Flagpole Fittings—(Please copy standard specifications from page 26 for ball, truck, cleats, halyards and swivel snaps.)

Foundation Tube—Provide a steel foundation tube made of (16-ga. galvanized corrugated steel) (standard seamless steel pipe) of length and diameter for this size pole, in accordance with Type (I) (II) (IIA) (III) of this manufacturer. Include painted welded steel bottom plate, lower steel welded internal centering wedges, steel lightning ground spike and steel plate support, as detailed. The inside diameter of the foundation tube shall be about 3-in. larger than the outside butt diameter of the flagpole.

Ground Protector—(To be omitted if metal base or flash collar is specified.) Provide a steel ground protector, one standard pipe size larger than the butt diameter of the flagpole, extending 12-in. above ground and 6-in. below ground, shrunk to flagpole, and having neatly beveled welds at both ends.

Painting—(Please copy similarly titled specification paragraph from page 8.)

Note: If metal base or flash collar is desired (see pages 22 & 23) indicate exact design number and metal of base required and omit ground protector from specifications as it then serves no useful purpose. For recommended foundation dimensions and types of foundation tube arrangements please see pages 24 & 25. If open specifications are required please see note on page 8.

dimensions

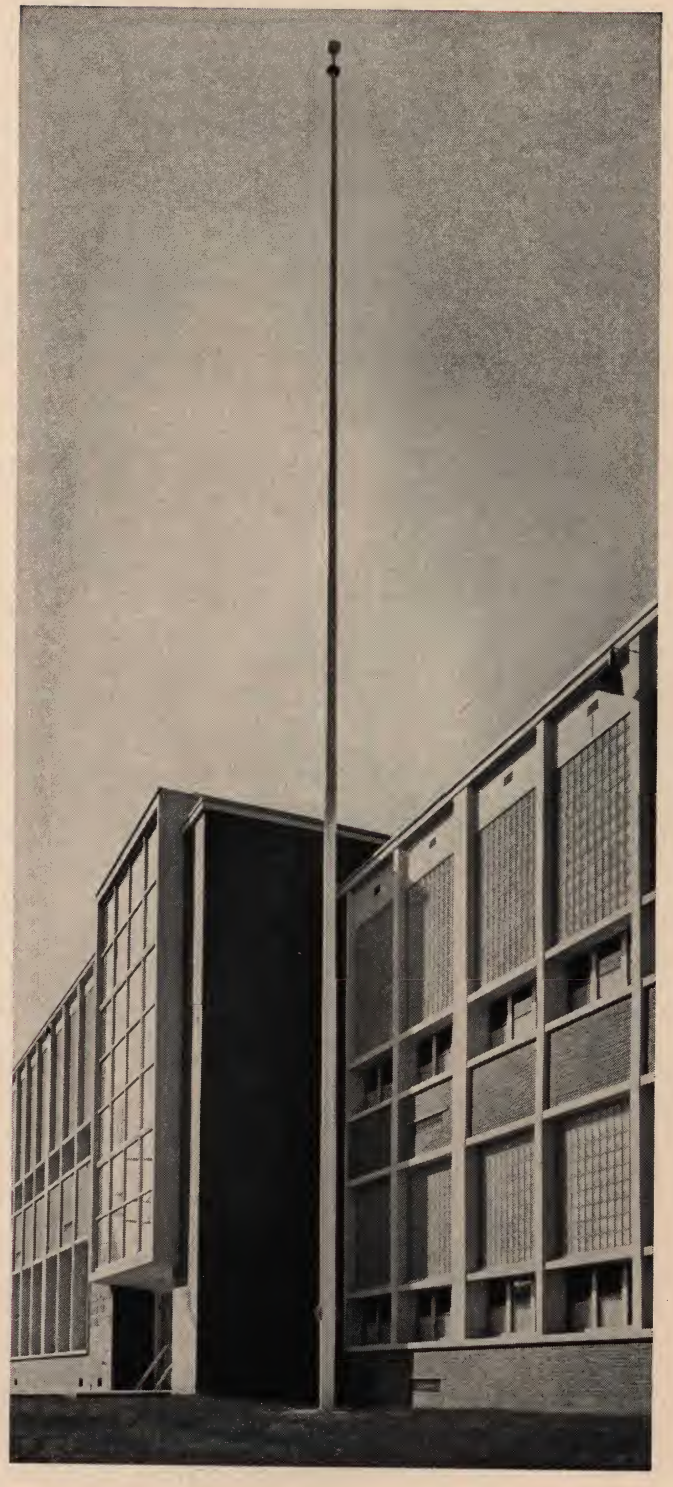
Exposed height, ft.	Setting depth, ft.	Total length, ft.	Outside diameter, in.			Weight—Pole & Ground Protector only — lbs.	Sections		
			Butt	Top	Ball		Total in pole	Shipping	
								Truck	Rail
LIGHT PATTERN									
15	2	17	3½	2⅜	4	133	3	1	1
20	3	23	3½	2⅜	5	164	3	1	1
25	3	28	4	2⅜	5	244	4	1	2
30	3	33	4½	2⅜	6	330	5	2	2
35	3½	38½	4½	2⅜	6	395	5	2	2
40	4	44	5	2⅜	6	515	6	2	3
45	4½	49½	5	2⅜	8	576	6	2	3
50	5	55	5⅝	2⅜	8	727	7	2	3
60	6	66	6⅝	2⅜	8	991	8	3	4
70	7	77	7⅝	2⅜	8	1313	9	3	4
75	7½	82½	8⅛	2⅜	10	1620	10	4	3
80	8	88	9⅛	2⅜	10	2032	11	4	3
90	9	99	10¾	2⅜	10	2509	12	4	3
100	10	110	11¾	2⅜	10	3094	13	5	4
HEAVY PATTERN									
20	3	23	4	2⅞	5	214	3	1	1
25	3	28	4½	2⅞	5	307	4	1	2
30	3	33	5	2⅞	6	405	5	2	2
35	3½	38½	5	2⅞	6	480	5	2	2
40	4	44	5⅝	2⅞	6	617	6	2	3
45	4½	49½	5⅝	2⅞	8	687	6	2	3
50	5	55	6⅝	2⅞	8	914	7	2	3
60	6	66	7⅝	2⅞	8	1223	8	3	4
70	7	77	8⅝	2⅞	8	1606	9	3	3
75	7½	82½	9⅝	2⅞	10	1988	10	4	3
80	8	88	10¾	2⅞	10	2459	11	4	3
90	9	99	11¾	2⅞	10	3002	12	4	3
100	10	110	12¾	2⅞	12	3643	13	5	4
125	12	137	14	3½	14	5804	13	7	4
EXTRA HEAVY PATTERN									
25	3	28	5	3½	5	372	4	1	2
30	3	33	5⅝	3½	6	482	5	2	2
35	3½	38½	6⅝	3½	8	654	6	2	2
40	4	44	7⅝	3½	8	948	7	2	3
45	4½	49½	7⅝	3½	8	1039	7	2	3
50	5	55	8⅝	3½	8	1329	8	2	3
55	5½	60½	9⅝	3½	8	1700	9	3	2
60	6	66	10¾	3½	10	2109	10	3	2
65	6½	71½	10¾	3½	10	2258	10	3	2
70	7	77	11¾	4	10	2785	10	3	3
75	7½	82½	12¾	4	12	3194	11	4	3
80	8	88	12¾	4	12	3404	11	4	3
90	9	99	14	4	14	4282	12	4	3
100	10	110	16	4	14	5402	13	5	4

typical installation



100-ft. High Heavy Pattern
Swaged Sectional Steel Flagpole
University of California
Los Angeles, California

Architect: University of California, Dept. of Grounds & Buildings



60-ft. High Heavy Pattern
Swaged Sectional Steel Flagpole
Casper W. Sharples Junior High School
Seattle, Wash.

Architects: Mallis and De Hart, Seattle

description

These special-made genuine Venetian Entasis tapered flagpoles are the ultimate in flagpole design and are recommended for memorials, monuments and all buildings of exceptional architectural value where an unusual flagpole installation is desired to best harmonize with the outstanding design of the project. The poles have a smooth uninterrupted exterior surface throughout, without visible joints or offsets and are made to order only, in steel, stainless steel, bronze, etc. Unlike Cone Tapered, Conical Tapered or Continuous Straight Tapered flagpoles which have a uniform straight line conical taper in the tapered portion, our Venetian Entasis tapered flagpoles have a curved taper or architectural entasis taper as precisely detailed in Table 2 and as illustrated. They are standardized in exposed lengths from 20 feet to 100 feet as shown in Table 1. The wall thickness varies from .226-in. minimum to .500-in. maximum, depending upon diameter. Steel poles of this type up to 33 feet in length are shipped in one piece without field joints. If the steel pole is over 33 feet in length, a substantial saving in freight cost is possible by arranging the pole for shipment in two pieces with a self-aligning internal splicing sleeve located in the cylindrical butt portion of the pole and requires only minor field welding and grinding. However, field joint arrangements in stainless steel or bronze poles are not recommended and stainless steel or bronze poles are shipped in one piece only regardless of length.

In order to acquaint the Architect with the difference between a genuine special-made Venetian Entasis tapered pole and a less costly machine-made Cone Tapered, Continuous Straight Tapered or Conical Tapered pole, we illustrate in Fig. 1 the two tapers. The contour of the Venetian Entasis taper is similar to the world-renowned columns at St. Mark's Cathedral, Venice, Italy. There is shown in Table 2 the entasis stations and respective pole diameters used by us to produce the nearest possible approach to a true Venetian Entasis. Only by strict conformance to these dimensions can this curved, architectural Venetian Entasis taper be achieved.

DO NOT BE MISLEAD! A conical tapered pole as the name implies, cannot have a curved taper. Any tapered pole having a conical or uniform or straight taper is NOT an Entasis Tapered pole.

description (continued)

If an Entasis Tapered pole is desired, definitely specify that the pole shall be a Genuine Venetian Entasis Tapered pole having curved architectural entasis, NOT conical or straight tapered, with exact diameters at respective entasis stations as shown in Table 2. The Architect should insist that the pole manufacturer submit shop drawings for approval prior to fabrication of the pole. Any shop drawing should be disapproved that does not show the pole diameter at each entasis station, as indicated in Table 2. Furthermore, the Architect should have his field representative carefully check the pole as finally delivered, before erection, to determine whether it has been fabricated exactly as required. Only in these ways can the Architect be assured that the pole is of the Genuine Venetian Entasis Tapered type.

The dimensions shown in Tables 1 and 2 are basically for steel flagpoles but may also be used for stainless and bronze flagpoles.

specifications

Flagpole—Furnish and erect, where shown on plans, a genuine Venetian Entasis Tapered (steel) (stainless steel) (bronze) flagpole, complete with all standard fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, New Jersey, and install concrete foundation, etc., all as detailed. Flagpole shall be (Standard Pattern) (Extra Heavy Pattern) with . . . feet height above ground by . . . feet total length. Outside diameter of pole butt shall be . . . inches, entasis tapered portion shall be . . . feet and outside diameter at top shall be . . . inches.
Flagpole Construction (for steel pole)—The cylindrical butt portion of the flagpole shall be seamless steel having a wall thickness corresponding to standard full weight pipe. The Venetian Entasis tapered portion of the pole shall have curved architectural entasis, not conical tapered, not straight tapered and not cone tapered. The tapered portion shall have wall thickness, outside diameters at respective entasis stations, etc. in strict accordance with the published standards of Acme Flagpole Division of John E. Lingo & Son, Inc. Any shop joints necessary in the fabrication of the

figure 1

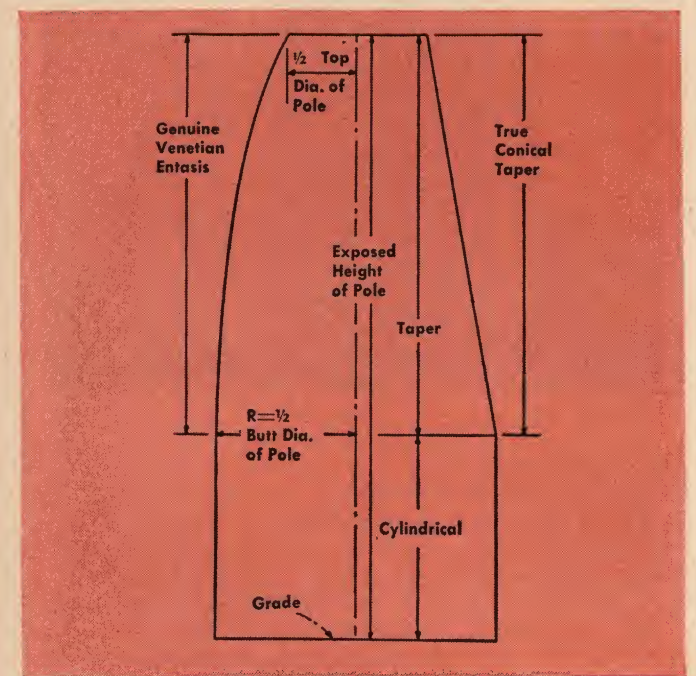


table 1

Exposed height — ft.	Setting depth — ft.	Total length — ft.	Outside Diameter In Inches			Bare Pole Weight — lbs.	Tapered portion — ft.	Tapered wall — in.	Cylindrical butt portion — ft.	Cylindrical wall — in.
			Butt	Top	Ball					
STANDARD PATTERN										
20	3	23	4	2	5	207	13	.226	10	.226
25	3	28	4½	2½	5	296	17	.237	11	.237
30	3	33	5	3	6	413	20	.247	13	.247
35	3½	38½	5⅝	3	6	522	23	.258	15½	.258
40	4	44	6⅝	3½	8	827	25	.280	19	.280
45	4½	49½	7⅝	3½	8	1104	30	.301 x .258	19½	.301
50	5	55	8⅝	3½	8	1423	35	.322 x .280	20	.322
60	6	66	9⅝	3½	10	2049	40	.342 x .301	26	.342
65	6½	71½	10¾	4	10	2661	45	.365 x .301	26½	.365
70	7	77	11¾	4	10	3282	45	.375 x .301	32	.375
75	7½	82½	12¾	4	12	3647	50	.375 x .301	32½	.375
80	8	88	14	4	12	5145	55	.500 x .301	33	.500
90	9	99	14	4	14	6143	60	.500 x .301	39	.500
100	10	110	16	4	14	7945	65	.500 x .301	45	.500
EXTRA HEAVY PATTERN										
20	3	23	5	3	5	272	13	.247	10	.247
25	3	28	6	3	6	417	17	.250	11	.250
30	3	33	6⅝	3½	6	621	20	.280	13	.280
35	3½	38½	7⅝	3½	8	894	23	.301 x .258	15½	.301
40	4	44	8⅝	4	8	1207	25	.322 x .280	19	.322
45	4½	49½	9⅝	4	8	1602	30	.342 x .301	19½	.342
50	5	55	10¾	4½	10	2045	35	.365 x .322	20	.365
60	6	66	11¾	4½	10	2809	40	.375 x .322	26	.375
65	6½	71½	12¾	5	12	3096	45	.375 x .342	26½	.375
70	7	77	14	5	12	4548	45	.500 x .342	32	.500
75	7½	82½	14	5	14	5058	50	.500 x .342	32½	.500
80	8	88	16	5	14	6161	55	.500 x .342	33	.500
90	9	99	18	5	14	8375	60	.500 x .342	39	.500
100	10	110	20	5	14	9954	65	.500 x .342	45	.500

specifications (continued)

pole shall not be discernible and the pole shall have a smooth uninterrupted exterior surface throughout without visible joints or offsets. The flagpole shall be shipped in one piece without field joints, unless a substantial saving in freight cost is possible by a two-piece shipment. If pole is shipped in two pieces a precision-made, self-aligning, steel internal splicing sleeve must be provided for the field joint of a type requiring no plug welds, shims or bolts for field alignment. The field joint shall be located in the cylindrical butt portion of the pole and the splicing sleeve shall be at least 36 inches long extending 18 inches each side of section abutment. Portion of sleeve in top of lower shipping section shall be securely shop welded. Portion of sleeve for extending into bottom of upper shipping section in field shall be machine-turned and self-aligning to provide snug fit. Minimum wall thickness of sleeve after machining shall be 5/16-in. After pole sections are pushed together in the field a circumferential weld shall be made at the section abutment and weld shall be ground smooth to make field joint invisible. A field joint arrangement requiring field plug welds or bolts or shims for field alignment of pole sections will not be acceptable.

Flagpole Fittings—(for steel pole)—Note To Specification Writer: Please copy specifications from page 26 for ball, truck, cleats, halyards and swivel snaps. Please also copy specifications from page 8 for foundation tube, ground protector or metal base.

Painting (for steel pole only)—Note to Specification Writer: Please copy painting specifications from page 8.

Flagpole Construction & Fittings (for stainless steel pole)—Note To Specification Writer: Please copy steel pole construction specifications as outlined above except substitute words "stainless steel" wherever word "steel" appears. Also omit all reference to field joint and splicing sleeve arrangement inasmuch as stainless steel poles are shipped in one piece only regardless of length. The same flagpole fittings specifications should be copied as indicated for steel poles above except that all reference to ground protector should be omitted and wherever words "bronze or copper" appear in fittings specifications indicate that such parts shall have chrome plated finish. Omit all reference to painting and state that stainless steel flagpoles shall have #4 finish. Ball ornaments can be supplied in spun stainless steel instead of chrome plated copper. Trucks, cleats and metal bases can be cast in Monel-S metal (similar to stainless steel) instead of chrome plated bronze. The foundation tube should be specified as steel, not stainless steel.

Flagpole Construction & Fittings (for bronze pole)—Note To Specification Writer: Please copy steel pole construction specifications as outlined above except substitute words "commercial bronze" wherever word "steel" appears. Also omit all reference to field joint and splicing sleeve arrangement inasmuch as bronze poles are shipped in one piece only regardless of length. The same flagpole fittings specifications should be copied as indicated for steel poles above except that all reference to ground protector and galvanized cast iron parts should be omitted. Omit all reference to painting and state that the bronze flagpole and bronze parts shall have a standard brush finish, clear lacquered. The foundation tube should be specified as steel, not bronze.



91½-ft. Genuine Venetian Entasis Tapered Bronze Flagpole
The Seagram Building
New York, N.Y.
Architects: Mies van der Rohe and Philip Johnson
Associate Architects: Kahn and Jacobs

table 2

Pole Height Above Ground in Feet	Entasis Tapered Portion in Feet	Vertical Spacing of Entasis Stations	ENTASIS STATIONS IN TAPERED PORTION OF POLE WITH RESPECTIVE DIAMETERS IN INCHES													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
STANDARD PATTERN POLES																
20	13	4′ 4″	4	3¾	3	2										
25	17	4′ 3″	4½	4⅜	4	3⅜	2½									
30	20	5′ 0″	5	4⅞	4½	3⅞	3									
35	23	4′ 7″	5⅝	5⅞	5⅛	4⅝	3 15/16	3								
40	25	5′ 0″	6⅝	6½	6⅛	5½	4⅝	3½								
45	30	5′ 0″	7⅝	7½	7⅛	6⅝	5¾	4 1/16	3½							
50	35	5′ 0″	8⅝	8½	8⅛	7⅝	6 13/16	5⅞	4¾	3½						
60	40	5′ 0″	9⅝	9½	9¼	8 11/16	8	7⅛	6	4⅞	3½					
65	45	5′ 0″	10¾	10 1/16	10⅜	9 15/16	9⅝	8½	7⅝	6½	5⅝	4				
70	45	5′ 0″	11¾	11 1/16	11⅜	10 13/16	10⅛	9⅜	8⅛	6⅞	5½	4				
75	50	5′ 0″	12¾	12 1/16	12⅜	11 15/16	11¼	10⅜	9⅜	8¼	7	5 1/16	4			
80	55	5′ 0″	14	13 5/16	13 3/16	13⅜	12⅝	11¾	10⅜	9⅝	8⅜	7 1/16	5⅝	4		
90	60	5′ 0″	14	13⅞	13¾	13⅜	12⅞	12¼	11⅜	10½	9½	8⅜	7⅛	5¾	4	
100	65	5′ 0″	16	15 15/16	15⅞	15⅜	14¾	14 1/16	13⅛	12 3/16	11⅛	9⅞	8½	7 1/16	5 9/16	4
EXTRA HEAVY PATTERN POLES																
20	13	4′ 4″	5	4¾	4⅛	3										
25	17	4′ 3″	6	5¾	5 1/16	4¼	3									
30	20	5′ 0″	6⅝	6 7/16	5 13/16	4 13/16	3½									
35	23	4′ 7″	7⅝	7½	6 11/16	6⅛	4⅞	3½								
40	25	5′ 0″	8⅝	8 7/16	7⅞	6⅞	5 5/16	4								
45	30	5′ 0″	9⅝	9 7/16	8 15/16	8⅛	7	5⅝	4							
50	35	5′ 0″	10¾	10 1/16	10¼	9 1/16	8⅝	7 7/16	6 1/16	4½						
60	40	5′ 0″	11¾	11 1/16	11 5/16	10 1/16	9 13/16	8¾	7½	6 1/16	4½					
65	45	5′ 0″	12¾	12 1/16	12⅜	11⅞	11 1/16	10 3/16	9⅛	7⅞	6⅝	5				
70	45	5′ 0″	14	13 7/16	13⅜	13	12 3/16	11 3/16	10	8⅝	7⅛	5				
75	50	5′ 0″	14	13⅞	13⅜	13⅛	12 7/16	11⅜	10½	9⅜	7⅞	6½	5			
80	55	5′ 0″	16	15⅞	15⅜	15⅛	14½	13⅜	12⅝	11½	10⅛	8 1/16	7 3/16	5		
90	60	5′ 0″	18	17 15/16	17⅞	17¼	16⅝	15 11/16	14⅝	13½	12⅛	10⅝	9⅛	7⅞	5	
100	65	5′ 0″	20	19 15/16	19¾	19¼	18⅝	17 11/16	16⅝	15 7/16	14 1/16	12⅝	11	9¼	7 7/16	5

CONE TAPERED ALUMINUM *flagpoles*

description

Cone Tapered Aluminum Flagpoles for ground setting are available in standard lengths from 23 feet to 65 feet. The poles are made of seamless aluminum having a wall thickness from 3/16-in. to 1/4-in. depending on diameter and are cold rolled, insuring smooth concentric shape, with a uniform conical taper of 1" in every 5'6" in the tapered portion. The material is 6063-T6 aluminum, having a tensile strength of 35,000 lbs. per sq. in. and a yield point of 30,000 lbs. per sq. in. This material is heat treated, age hardened, architectural aluminum, noted for its good weathering qualities and strength characteristics.

In designing these aluminum flagpoles careful consideration has been given to the characteristics of aluminum compared to steel and the limitations of aluminum for flagpole use. THE DIAMETERS, TAPERED LENGTHS, AND WALL THICKNESS SHOWN ARE THE MINIMUM CONSISTENT WITH GOOD ENGINEERING PRATICE FOR THIS PARTICULAR METAL. ALUMINUM POLES HAVING SMALLER DIAMETERS OR LIGHTER WALL THICKNESS FOR THESE SAME GIVEN LENGTHS SHOULD NOT BE CONSIDERED. For example, engineering analysis indicated that a 60-ft. high aluminum pole, 8" O.D. butt x 3¼" O.D. top would deflect some 85.7" in a 100 M.P.H. wind and that the stress would be 24,700 p.s.i. or a safety factor of only about 1.2 on a yield of 30,000 p.s.i. as compared to our 60-ft. high aluminum pole, 12" O.D. butt x 5" O.D. top which would deflect some 38" and would be stressed to only 16,350 p.s.i. In hurricane winds over 100 M.P.H. the pronounced deflection in the smaller diameter pole would increase and the stress could exceed the yield to an extent that pole failure could be possible.

description (continued)

The exterior surface of our Cone Tapered Aluminum Flagpoles is machined to an 80-grit satin brush finish, then waxed to minimize any handling discoloration and to insure uniform weathering characteristics. After waxing, the poles are spirally wrapped with heavy paper, covered with burlap, wood stripped, and steel banded for protection during transit. After the protective wrappings have been removed and the pole erected, the exposed aluminum surface will gradually weather to a uniform grey patina. Alcoa does not recommend alumiliting or anodizing as being advantageous for flagpoles. THE EXPOSED SURFACE OF ALUMINUM FLAGPOLES SHOULD NOT BE PAINTED IN EITHER SHOP OR FIELD THUS ALLOWING THE ALUMINUM TO WEATHER NATURALLY AND MAKING PAINTING MAINTENANCE UNNECESSARY. However, the unexposed portion of the pole below ground should be heavily shop coated inside and outside with black asphaltum. Shop painting of the exposed aluminum is usually advantageous only to the fabricator in that it saves the extra expense of working the material to a fine satin finish and serves as a means of hiding welds or surface imperfections.

All poles may be shipped in one piece without field joints except that a substantial saving can usually be made in freight costs if the 38½, 44, 55 and 65 feet standard poles are each shipped in two pieces. In that case the pole is arranged with a snug-fitting, precision-made, self-aligning, internal splicing sleeve arrangement and no field welding nor grinding is necessary after the two sections are pushed together at the erection site.

Bronze fittings or aluminum fittings having bronze parts should not be used on aluminum poles because of serious galvanic corrosive action between the two metals.

specifications

Flagpole—Furnish and erect, where shown on plans, a cone tapered aluminum flagpole, complete with all standard fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N.J. and install concrete foundation in accordance with their standard details. Flagpole to be ground set, Standard Type, ... feet exposed height above ground by . . . . feet total length. The outside butt diameter shall be . . . . inches, the tapered portion . . feet . . . . inches and the outside top diameter . . . . inches.

Flagpole Construction—The flagpole shall have a wall thickness throughout of not less than .188-in. and shall have a uniform conical taper of 1" in every 5'6" throughout the tapered portion. The pole shall be machine-made of 6063-T6 seamless cold drawn aluminum and not from rolled plate with welded seam. Pole shall have a smooth uninterrupted exterior surface without visible joints or offsets and shall be shipped in one piece without field joints unless a substantial saving in freight cost is possible by a two piece shipment. The exterior surface of the pole shall be machined to a satin brush finish and then waxed. Painting of the exposed aluminum will not be permitted. Before shipment, the pole shall be spirally wrapped with heavy paper, covered with burlap, wood-stripped, and steel-banded for protection during transit. If pole is shipped in two pieces, the field joint shall consist of a snug-fitting, precision-made, internal splicing sleeve arrangement so designed that self-alignment of pole sections in field is assured and no field welding nor grinding is necessary.

specifications (continued)

Painting—The unexposed portion of flagpole below ground shall receive a heavy coat of black asphaltum inside and outside before shipment.

Ball—The ball shall be . . . . inches in diameter (see table of dimensions) constructed of 14-ga. aluminum, having satin brush finish, heavily waxed. Ball shall be mounted on a 5/8-in. dural rod attached to truck.

Truck—Provide a Lingo standard ball bearing non-fouling truck with aluminum body, revolving on aluminum spindle with ball race containing twenty-six 1/4-in. stainless steel balls. Truck shall be fitted with two 2⅜-in. diameter nylon-bushed aluminum sheaves rotating on 3/8-in dural pins. **Note:** For 65-ft. pole only truck is extra heavy type having 4-in. sheaves and ½-in. pins.

Halyards—Provide two 5/16-in. dia. #10 cotton braided rope halyards each with two aluminum snaps for securing to flag.

Cleats—Provide two 9-in. cast aluminum cleats each attached to pole with two 5/16-in. flat head dural machine screws.

Foundation Tube—Provide a galvanized foundation tube (16-ga. corrugated steel) (standard seamless steel pipe) of proper length and diameter for this size pole in accordance with Type (I) (II) (IIA) (III) of this manufacturer. Include welded steel bottom plate, lower welded steel internal centering wedges, steel lightning ground spike and steel plate support, all galvanized and as detailed.

specification (continued)

Metal Base (Optional)—Provide a standard cast aluminum base, design number . . . . . having an 80-grit satin brush finish. Provide recess in top for waterproof calking to flagpole after erection.

Notes: For standard aluminum bases please see pages 22 and 23. For recommended foundation dimensions and types of foundation tube arrangements please refer to page 24. Ground protectors are not supplied nor advantageous on aluminum flagpoles; aluminum bases #2001, #2002 or #2003 (see page 22) may be used in lieu thereof if so desired. Cleat covers in aluminum with standard padlocks and hardware can also be furnished.

dimensions

Exposed hgt., feet	Setting depth, ft.	Total length, feet	Diameter, in.			Bare Pole weight, lbs.	Wall thickness, in.	Tapered portion	Cylindrical butt portion
			Butt	Top	Ball				
STANDARD TYPE									
20	3	23	5	3¼	5	80	.188	9′ 8″	13′ 4″
25	3	28	5½	3½	6	110	.188	11′ 0″	17′ 0″
30	3	33	6	3½	6	140	.188	13′ 9″	19′ 3″
35	3½	38½	7	3½	6	185	.188	19′ 3″	19′ 3″
40	4	44	8	3½	8	250	.188	24′ 9″	19′ 3″
50	5	55	10	4	10	385	.188	33′ 0″	22′ 0″
59	6	65	12	5	12	625	*	38′ 6″	26′ 6″

* 59′x65′ pole has .250-in. wall thickness in cylindrical butt portion and in the 12″ O.D. to 8″ O.D. part of tapered portion; tapered portion from 8″ O.D. to 5″ O.D. has .188-in. wall.



Three 65-ft. Cone Tapered Aluminum Flagpoles
The Statler-Hilton Hotel
Dallas, Texas
Architect: William B. Tabler



65-ft. Cone Tapered Aluminum Flagpole
Hudson's Eastland Center
Harper Woods, Michigan
Architect: Victor Gruen Associated Architects & Engineers, Inc.

description

Equipoise Counter-balanced Tilting Flagpoles are available in standard lengths of 20, 25, 30, 35, 40, and 50 feet. They can be speedily lowered and raised by one man whenever replacement of halyard rope, etc. is necessary. These tilting poles are furnished in Cone Tapered Standard Type Aluminum construction only, made of 6063-T6 seamless aluminum having a 3/16-in. minimum wall thickness and are cold rolled, insuring smooth concentric shape, with a uniform conical taper of 1" in every 5'6" in the tapered portion. Pole diameters shown in table of dimensions are minimum consistent with good engineering practice, see typical example on page 14. The exterior surface of the pole is machined to an 80-grit satin brush finish, then waxed to minimize any handling discoloration and to insure uniform weathering characteristics. Before shipment the poles are spirally wrapped with heavy paper, covered with burlap, wood stripped and steel banded for protection during transit. NO PAINTING OF THE ALUMINUM POLE AND ALUMINUM PARTS IS REQUIRED NOR RECOMMENDED. (See page 14.)

The Equipoise counter-balanced tilting unit is all-steel construction consisting of channels, base plate, counter-weights, container, pipe ferrule, bolts and innerliner. All parts of the tilting unit are painted one shop coat of aluminum paint except that the pole butt innerliner and pipe ferrule are hot-dip galvanized.

The pole can be lowered whenever desired with the utmost ease and complete safety by merely removing two small bolts near the bottom of unit and applying slight pressure to the counterweight container. The pole is in perfect balance at any position and the base load remains unchanged during the operation. Only minimum anchorage of the surface-mounted base plate is required, and there is no advantage to extend the channels into the foundation. The counterweights are neatly housed in a trim-appearing steel container, thereby eliminating any necessity for an ornamental base cover. The galvanized steel pole butt innerliner is an integral part of the counter-balance arrangement and provides added reinforcement to the pole during the raising and lowering operation.

description (continued)

All poles can be shipped in one piece without field joints but a substantial saving can usually be made in freight costs if poles 35-ft. and over are shipped in two pieces. In that case the pole is arranged with a snug-fitting, precision-made, self-aligning, internal splicing sleeve arrangement and no field welding nor grinding is necessary after the two sections are pushed together at the erection site.

specifications

Flagpole—Furnish and erect a . . . . feet high Equipoise Counter-balanced Tilting Flagpole, manufactured by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. Pole shall be of Cone Tapered Standard Type Aluminum construction, ... inches outside diameter at butt tapering conically through the upper . . . . feet . . . . inches to . . . . inches outside diameter at top.

Flagpole Construction—The flagpole shall have a wall thickness throughout of not less than .188-in. and shall have a uniform conical taper of 1" in every 5'6" throughout the tapered portion. The pole shall be machine-made of 6063-T6 seamless cold drawn aluminum and not from rolled plate with welded seam. Pole shall have a smooth uninterrupted exterior surface without offsets and shall be shipped in one piece without field joints unless a substantial saving in freight cost is possible by a two piece shipment. The exterior surface of the pole shall be machined to an 80-grit satin brush finish and then waxed. Painting of the exposed aluminum will not be permitted. Before shipment, the pole shall be spirally wrapped with heavy paper, covered with burlap, wood-stripped, and steel-banded for protection during transit. *Additional specifications for poles 35-ft. and over.* If pole is shipped in two pieces, the field joint shall consist of a snug-fitting, precision-made, internal splicing sleeve arrangement so designed that self-alignment of pole sections in field is assured and no field welding nor grinding is necessary.

Ball—The ball shall be . . . . inches in diameter (see accompanying table of dimensions), constructed of 14-ga. aluminum, having satin brush finish, heavily waxed. Ball shall be mounted on a 5/8-in. dural rod attached to truck.

dimensions

Pole length—feet	20	25	30	35	40	50
Outside Butt Diameter—Inches	5	5½	6	7	8	10
Outside Top Diameter—Inches	3¼	3½	3½	3½	3½	4
Wall Thickness—Inches	.188	.188	.188	.188	.188	.188
Tapered Portion	9' 8"	11' 0"	13' 9"	19' 3"	24' 9"	33' 0"
Cylindrical Butt Portion	10' 4"	14' 0"	16' 3"	15' 9"	15' 3"	17' 0"
Ball Diameter—Inches	5	6	6	6	8	10
Channel Size—Inches	5	6	6	7	8	10
Channel Weight Per Ft.—Lbs.	6.7	8.2	8.2	9.8	11.5	20
Base Plate (Square)	16 x ½	18 x ½	20 x ½	22 x ½	24 x ½	28 x ½
Diameter of 4 Base Plate Holes	7/8"	7/8"	7/8"	15/16"	15/16"	15/16"
Edge Distance—Inches	2	2	2	2	2	2
Diameter and Length of 4 Anchor Bolts—Inches	¾ x 15	¾ x 16	¾ x 16	7/8 x 17	7/8 x 18	7/8 x 20
Setting Depth of Bolts—Inches	13	14	14	15	15	18
Innerliner Extension Above Fulcrum Point—Inches	12	15	18	21	24	30
Bare Pole Weight—Lbs.	70	100	125	170	225	350
Complete Tilting Arrangement—Lbs.	350	500	625	850	1050	2100
Foundation Height Above Ground	6"	6"	6"	6"	6"	6"
Foundation Depth Below Ground	2' 6"	2' 9"	3' 0"	3' 3"	3' 6"	4' 0"
Foundation Size (Square) for Firm Dry Soil	2' 4"	2' 6"	2' 8"	2' 10"	3' 0"	3' 6"

specifications (continued)

Truck— Provide a Lingo standard non-fouling ball bearing revolving truck with aluminum body, revolving on aluminum spindle with ball race containing twenty-six ¼-in. stainless steel balls. Trucks shall be fitted with two 2⅜-in. diameter nylon-bushed aluminum sheaves rotating on ⅜-in. dural pins.

Halyard— Provide one ⅜-in. dia. U.S. standard manila bolt rope halyard with two aluminum swivel snaps for securing to flag.

Cleat— Provide one 9-in. cast aluminum cleat attached to side of channel with two 5/16-in. dural machine screws.

Tilting Arrangement— Provide one complete standard Equipoise Counter-balanced steel tilting arrangement consisting of surface-mounted channels and base plate, counterweights, container, pipe ferrule, pivot bolt, anchor bolts, locking clips and standard steel pipe innerliner to extend . . . . inches above fulcrum point (see accompanying table of dimensions). All steel parts shall be painted one shop coat of aluminum paint except that the steel pipe innerliner and the pipe ferrule shall be hot-dip galvanized.

Finish— Flagpole and all aluminum parts shall have a satin brush finish, heavily waxed. Painting of the aluminum will not be allowed. All exposed steel parts of tilting arrangement shall be painted one shop coat of aluminum paint except that the steel pipe innerliner and the pipe ferrule shall be hot-dip galvanized. Apply one field coat of aluminum paint to all exposed steel surfaces after erection.

typical installation



35-ft. Standard Type Cone Tapered
Aluminum Flagpole with
Equipoise Tilting Unit
Spindletop Elementary School
Beaumont, Texas
Architect: Wallace B. Livesay



40-ft. Standard Type Cone Tapered
Aluminum Flagpole with
Equipoise Tilting Unit
Ernest W. Potter School
Flint, Michigan
Architects: Eberle M. Smith Associates, Inc.
Detroit

NAUTICAL TYPE *flagpoles*

description

These special steel flagpole arrangements are particularly appropriate for installation at yacht clubs, marinas, swimming pools, piers, wharves, Coast Guard stations, Naval and Marine bases, seashore or lakeside residences and other buildings where a nautical motif is desired.

The double-mast pole consists of topmast, lowermast, horizontal yardarm (crossarm) and gaff, the latter being projected at 30 degrees above the horizontal. The individual members are very carefully proportioned as to their respective lengths, etc., so that the finished assembly gives the most pleasing nautical effect. The topmast is approximately 40% of the combined assembled height of the entire pole above ground, including approximately 10% overlapping distance on lowermast. The lowermast is approximately 60% of the combined assembled height of the entire pole above ground plus 10% of topmast length for overlap and 10% of the exposed assembled pole height for setting depth in foundation or anchorage. The yardarm length is approximately 27% of the combined assembled height of the entire pole above ground. The gaff length is approximately 18% of the combined assembled height of the entire pole above ground. The poles will also accommodate such optional items as eagle weathervanes, anemometers, obstruction lights, signal and running lights, etc.

These double-mast poles are manufactured of both Swaged Sectional and Cone Tapered steel construction in two different weights and are available in standard exposed heights from 40 to 100 feet, as shown in the complete tables of dimensions on pages 20 to 21. Taller poles can be produced to special order. The Swaged Sectional poles are less costly than the Cone Tapered poles.

Poles and steel parts are galvanized after fabrication by the hot-dip process where installations are made at the seacoast or at other locations where water or dampness is a factor. For dry locations away from salt air, water and constant dampness, the poles are completely satisfactory and a saving can be realized if the galvanizing is omitted and the poles are painted a shop coat of red lead and oil followed by two field coats of white lead and oil. Field painting of galvanized poles should be deferred until about six months after the pole is initially installed. This period allows the galvanized surface to properly weather or neutralize so that paint will then adhere without risk of peeling or blistering.

Recommended minimum foundation dimensions for conventional installations in good, firm, dry soil only can be obtained from data given on pages 24 & 25. However, where sand, muck and water conditions prevail or where anchorage is to pier or wharf structures then special foundations or anchorages will be necessary. In such cases please consult us before finally specifying foundation dimensions or anchorage details.

specifications

(For Standard Dimensions See Pages 20 and 21)

Furnish and erect, where shown on plans, a .... feet high (Swaged Sectional) (Cone Tapered) steel double-mast nautical type flagpole, complete with yardarm, gaff and all other equipment made in strict accordance with the standard product of Acme Flagpole Division, John E. Lingo & Son, Inc., Camden, New Jersey. Pole shall be Type Number ..... having an assembled exposed height above ground of .... feet by a total assembled length of .... feet including portion in foundation or anchorage. The topmast shall have an exposed height of .... feet .... inches above lowermast. The lowermast shall have an exposed height of .... feet .... inches above ground and be set .... feet .... inches in foundation or anchorage. The yardarm shall be .... feet .... inches long. The gaff shall be .... feet .... inches long.

Pole shall be equipped with standard gold leafed copper arrow weathervane, having .... inches arrow length, standard non-fouling ball bearing revolving truck, one 9″ cast iron galvanized cleat, one 3/8-in. dia. U. S. standard manila bolt rope halyard with two bronze swivel snaps, one standard steel ground protector and two standard fabricated steel bands, etc. for connecting topmast to lowermast.

Yardarm shall be furnished with two standard bronze swivel blocks, two 3/8-in. dia. U. S. standard manila bolt rope halyards each with two bronze swivel snaps, two 9″ cast iron galvanized cleats and one standard fabricated steel connection for attaching yardarm to lowermast.

Gaff shall be furnished with one standard bronze pole cap, one standard bronze swivel block, one 9″ cast iron galvanized cleat, one 3/8-in. U. S. standard manila bolt rope halyard with two bronze swivel snaps and one standard fabricated steel socket arrangement for attaching gaff to lowermast at 30 degrees above horizontal.

Topmast, lowermast, yardarm, gaff and all steel connecting fittings shall be galvanized after fabrication by the hot-dip process.

notes to specification writer

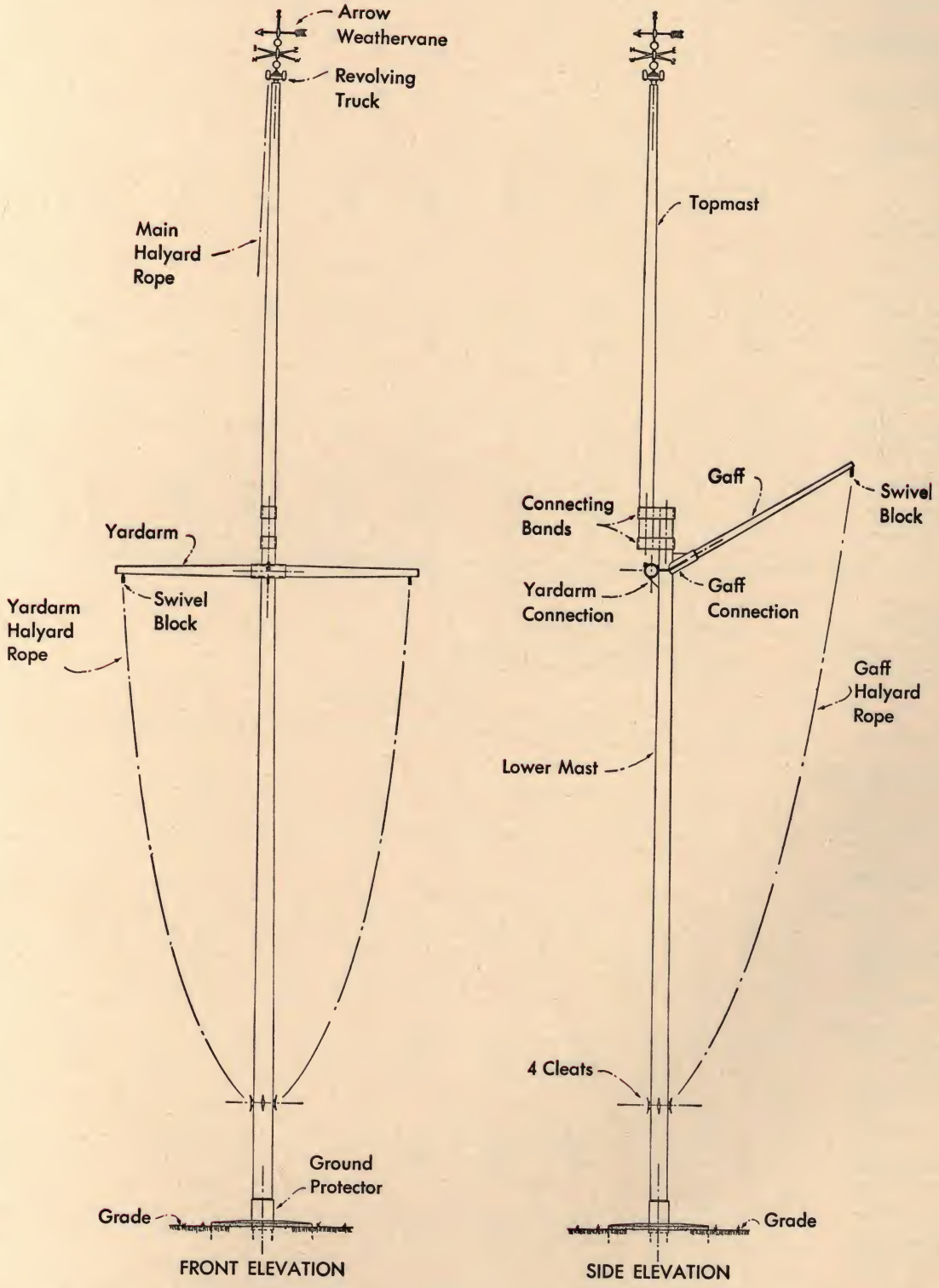
1. If pole will be located away from salt air, water and constant dampness, the galvanizing can be omitted in which case specify that the topmast, lowermast, yardarm, gaff and all steel connecting fittings be painted one shop coat of red lead and oil followed by two coats of white lead and oil after erection.

2. If good, firm dry soil exists at the erection site and the pole will anchor in the conventional manner please add the following specifications: Install concrete foundation in accordance with standard details of Acme Flagpole Division, John E. Lingo & Son, Inc., Camden, New Jersey. Provide a steel foundation tube made of (16-ga. galvanized corrugated steel) (standard seamless steel pipe) of length and diameter for this size pole, in accordance with Type (I) (II) (IIA) (III) of this manufacturer. Include welded steel bottom plate, lower steel welded internal centering wedges, steel lightning ground spike and steel plate support, as detailed. The inside diameter of the foundation tube shall be about 3-in. larger than the outside butt diameter of the pole.

3. Where extremes of sand, muck and water prevail at erection site or where anchorage is to pier or wharf structures, please consult us before specifying foundation dimensions or anchorage details.

4. If metal base or flash collar is desired (see pages 22 and 23) indicate exact design number and metal of base required and *omit* ground protector from specifications.

double-mast nautical type steel flagpole



DIMENSIONS
DOUBLE-MAST SWAGED SECTIONAL STEEL FLAGPOLES

HEAVY PATTERN

POLE TYPE NUMBER	DM-40-HP	DM-45-HP	DM-50-HP	DM-55-HP	DM-60-HP	DM-65-HP	DM-70-HP	DM-75-HP	DM-80-HP	DM-90-HP	DM-100-HP
ASSEMBLED EXPOSED HEIGHT OF TOPMAST & LOWERMAST ABOVE GROUND	40′	45′	50′	55′	60′	65′	70′	75′	80′	90′	100′
TOTAL ASSEMBLED LENGTH (including portion in ground)	44′	49½′	55′	60½′	66′	71½′	77′	82½′	88′	99′	110′
TOPMAST DIMENSIONS											
Exposed Height (above lowermast)	14′0″	16′0″	18′0″	19′9″	21′6″	23′6″	25′0″	27′0″	28′6″	32′6″	36′0″
Overlap (through connecting bands)	2′0″	2′0″	2′0″	2′3″	2′6″	3′0″	3′0″	3′0″	3′6″	3′6″	4′0″
Outside Diameter, Top	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″
Outside Diameter, Butt	4″	4″	4½″	4½″	4½″	4½″	4½″	5″	5″	5⅝″	5⅝″
Number of Pipe Sections	3	3	4	4	4	4	4	5	5	6	6
ARROW WEATHERVANE	24″	24″	24″	30″	30″	30″	36″	36″	42″	42″	48″
LOWERMAST DIMENSIONS											
Height Above Ground	26′0″	29′0″	32′0″	35′3″	38′6″	41′6″	45′0″	48′0″	51′6″	57′6″	64′0″
Set In Foundation	4′0″	4′6″	5′0″	5′6″	6′0″	6′6″	7′0″	7′6″	8′0″	9′0″	10′0″
Outside Diameter, Top	4½″	4½″	5″	5″	5″	5″	5″	5⅝″	5⅝″	6⅝″	6⅝″
Outside Diameter, Butt	5⅝″	5⅝″	6⅝″	6⅝″	7⅝″	7⅝″	8⅝″	9⅝″	10¾″	11¾″	12¾″
Number of Pipe Sections	3	3	3	3	4	4	5	5	6	6	7
YARDARM DIMENSIONS											
Length	11′0″	12′0″	13′6″	15′0″	16′6″	17′6″	19′0″	20′6″	22′0″	24′6″	27′0″
Outside Diameter, Center	3½″	3½″	4″	4″	4″	4″	4″	4½″	4½″	5″	5″
Outside Diameter, Ends	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	3½″	3½″
Number of Pipe Sections	3	3	5	5	5	5	5	7	7	7	7
GAFF DIMENSIONS											
Length	7′6″	8′0″	9′0″	10′0″	11′0″	12′0″	13′0″	14′0″	15′0″	16′6″	18′0″
Outside Diameter, Top	2⅜″	2⅜″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	3½″	3½″
Outside Diameter, Butt	2⅞″	2⅞″	3½″	3½″	3½″	3½″	3½″	4″	4″	4½″	4½″
Number of Pipe Sections	2	2	2	2	2	2	2	3	3	3	3
SHIPPING WEIGHT: Topmast, lowermast, yardarm, gaff, all connecting bands, ground protector and other standard fittings (excluding optional fittings)											
Lbs.	929	1041	1344	1458	1730	1890	2172	2718	3223	4340	5077
OPTIONAL FITTINGS											
Foundation Tube	—Please See Information on Page 24.										
Eagle With Arrow Weathervane	24″	24″	24″	30″	30″	30″	36″	36″	42″	42″	48″
Ornamental Base or Flash Collar	—See Details of Stock Bases on Pages 22 & 23.										
Lighting Equipment	—Consult Manufacturers of Marine Lighting Equipment.										

EXTRA HEAVY PATTERN

POLE TYPE NUMBER	DM-40-EHP	DM-45-EHP	DM-50-EHP	DM-55-EHP	DM-60-EHP	DM-65-EHP	DM-70-EHP	DM-75-EHP	DM-80-EHP	DM-90-EHP	DM-100-EHP
ASSEMBLED EXPOSED HEIGHT OF TOPMAST & LOWERMAST ABOVE GROUND	40′	45′	50′	55′	60′	65′	70′	75′	80′	90′	100′
TOTAL ASSEMBLED LENGTH (including portion in ground)	44′	49½′	55′	60½′	66′	71½′	77′	82½′	88′	99′	110′
TOPMAST DIMENSIONS											
Exposed Height (above lowermast)	14′0″	16′0″	18′0″	19′9″	21′6″	23′6″	25′0″	27′0″	28′6″	32′6″	36′0″
Overlap (through connecting bands)	2′0″	2′0″	2′0″	2′3″	2′6″	3′0″	3′0″	3′0″	3′6″	3′6″	4′0″
Outside Diameter, Top	3½″	3½″	3½″	3½″	3½″	3½″	4″	4″	4″	4″	4″
Outside Diameter, Butt	4½″	4½″	5″	5″	5″	5″	5⅝″	6⅝″	6⅝″	7⅝″	7⅝″
Number of Pipe Sections	3	3	4	4	4	4	4	5	5	6	6
ARROW WEATHERVANE	24″	24″	24″	30″	30″	30″	36″	36″	42″	42″	48″
LOWERMAST DIMENSIONS											
Height Above Ground	26′0″	29′0″	32′0″	35′3″	38′6″	41′6″	45′0″	48′0″	51′6″	57′6″	64′0″
Set in Foundation	4′0″	4′6″	5′0″	5′6″	6′0″	6′6″	7′0″	7′6″	8′0″	9′0″	10′0″
Outside Diameter, Top	5″	5″	5⅝″	5⅝″	5⅝″	5⅝″	6⅝″	7⅝″	7⅝″	8⅝″	8⅝″
Outside Diameter, Butt	7⅝″	7⅝″	8⅝″	9⅝″	10¾″	10¾″	11¾″	12¾″	12¾″	14″	16″
Number of Pipe Sections	4	4	4	5	6	6	6	6	6	6	7
YARDARM DIMENSIONS											
Length	11′0″	12′0″	13′6″	15′0″	16′6″	17′6″	19′0″	20′6″	22′0″	24′6″	27′0″
Outside Diameter, Center	4″	4″	4½″	4½″	4½″	4½″	5″	5⅝″	5⅝″	6″	6″
Outside Diameter, Ends	3½″	3½″	3½″	3½″	3½″	3½″	3½″	4″	4″	4½″	4½″
Number of Pipe Sections	3	3	5	5	5	5	7	7	7	7	7
GAFF DIMENSIONS											
Length	7′6″	8′0″	9′0″	10′0″	11′0″	12′0″	13′0″	14′0″	15′0″	16′6″	18′0″
Outside Diameter, Top	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	2⅞″	3½″	3½″	3½″	4″	4″
Outside Diameter, Butt	3½″	3½″	4″	4″	4″	4″	4½″	5″	5″	5⅝″	5⅝″
Number of Pipe Sections	2	2	3	3	3	3	3	4	4	4	4
SHIPPING WEIGHT: Topmast, lowermast, yardarm, gaff, all connecting bands, ground protector and other standard fittings (excluding optional fittings)											
Lbs.	1226	1374	1747	2112	2566	2678	3522	4321	4508	6213	7435
OPTIONAL FITTINGS (see table above)											

DIMENSIONS
DOUBLE-MAST CONE TAPERED STEEL FLAGPOLES

STANDARD TYPE

POLE TYPE NUMBER	DM-40-ST	DM-45-ST	DM-50-ST	DM-55-ST	DM-60-ST	DM-65-ST	DM-70-ST	DM-75-ST	DM-80-ST	DM-90-ST	DM-100-ST
ASSEMBLED EXPOSED HEIGHT OF TOPMAST & LOWERMAST ABOVE GROUND	40′	45′	50′	55′	60′	65′	70′	75′	80′	90′	100′
TOTAL ASSEMBLED LENGTH (including portion in ground)	44′	49½′	55′	60½′	66′	71½′	77′	82½′	88′	99′	110′
TOPMAST DIMENSIONS											
Exposed Height (above lowermast)	14′0″	16′0″	18′0″	19′9″	21′6″	23′6″	25′0″	27′0″	28′6″	32′6″	36′0″
Overlap (through connecting bands)	2′0″	2′0″	2′0″	2′3″	2′6″	3′0″	3′0″	3′0″	3′6″	3′6″	4′0″
Outside Diameter, Top	3¼″	3¼″	3¼″	3¼″	3¼″	3¼″	3¼″	3¼″	3¼″	3½″	3½″
Outside Diameter, Butt	4½″	5″	5 5/16″	5 5/16″	6″	6″	6″	6⅝″	6⅝″	7⅝″	7⅝″
Tapered Portion	9′0″	12′6″	16′6″	16′6″	19′6″	19′6″	19′6″	24′0″	24′0″	29′6″	29′6″
Wall Thickness	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″
Cylindrical Butt	7′0″	5′6″	3′6″	5′6″	4′6″	7′0″	8′6″	6′0″	8′0″	6′6″	10′6″
Wall Thickness	.237″	.247″	.258″	.258″	.250″	.250″	.250″	.280″	.280″	.301″	.301″
ARROW WEATHERVANE	24″	24″	24″	30″	30″	30″	36″	36″	42″	42″	48″
LOWERMAST DIMENSIONS											
Height Above Ground	26′0″	29′0″	32′0″	35′3″	38′6″	41′6″	45′0″	48′0″	51′6″	57′6″	64′0″
Set in Foundation	4′0″	4′6″	5′0″	5′6″	6′0″	6′6″	7′0″	7′6″	8′0″	9′0″	10′0″
Outside Diameter, Top	4½″	5″	5 5/16″	5 5/16″	6″	6″	6″	6⅝″	6⅝″	7⅝″	7⅝″
Outside Diameter, Butt	5 5/16″	6″	6⅝″	6⅝″	7⅝″	7⅝″	8⅝″	9⅝″	10¾″	11¾″	12¾″
Tapered Portion	7′6″	7′2″	7′6″	7′6″	11′6″	11′6″	18′9″	21′6″	29′6″	29′6″	36′6″
Wall Thickness	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″
Cylindrical Butt	20′6″	24′4″	27′6″	31′0″	30′6″	33′6″	30′3″	31′0″	26′6″	33′6″	33′6″
Wall Thickness	.258″	.250″	.280″	.280″	.301″	.301″	.322″	.342″	.365″	.375″	.375″
Cylindrical Portion (through connecting bands)	2′0″	2′0″	2′0″	2′3″	2′6″	3′0″	3′0″	3′0″	3′6″	3′6″	4′0″
Wall Thickness	.237″	.247″	.258″	.258″	.250″	.250″	.250″	.280″	.280″	.301″	.301″
YARDARM DIMENSIONS											
Length	11′0″	12′0″	13′6″	15′0″	16′6″	17′6″	19′0″	20′6″	22′0″	24′6″	27′0″
Outside Diameter, Center	3½″	4″	4½″	4½″	5″	5″	5″	5 5/16″	5 5/16″	6″	6″
Outside Diameter, Ends	2½″	2⅞″	2⅛″	2⅞″	3″	3″	3″	3″	3″	3¼″	3¼″
Cylindrical Portion, Center	2′0″	2′4″	2′8″	3′0″	3′4″	3′6″	3′10″	4′2″	4′6″	5′0″	5′6″
Tapered Portion, Ends	4′6″	4′10″	5′5″	6′0″	6′7″	7′0″	7′7″	8′2″	8′9″	9′9″	10′9″
Wall Thickness Throughout	.216″	.226″	.237″	.237″	.247″	.247″	.247″	.258″	.258″	.250″	.250″
GAFF DIMENSIONS											
Length	7′6″	8′0″	9′0″	10′0″	11′0″	12′0″	13′0″	14′0″	15′0″	16′6″	18′0″
Outside Diameter, Top	2⅜″	2⅜″	2½″	2⅞″	2⅞″	2⅞″	2⅞″	3″	3″	3¼″	3¼″
Outside Diameter, Butt	2⅞″	2⅞″	3½″	3½″	4″	4″	4″	4½″	4½″	5″	5″
Tapered Portion	5′8″	6′0″	6′9″	7′6″	8′3″	9′0″	9′9″	10′6″	11′4″	12′6″	12′6″
Wall Thickness	.203″	.203″	.216″	.216″	.226″	.226″	.226″	.237″	.237″	.250″	.250″
Cylindrical Butt	1′10″	2′0″	2′3″	2′6″	2′9″	3′0″	3′3″	3′6″	3′8″	4′0″	5′6″
Wall Thickness	.203″	.203″	.216″	.216″	.226″	.226″	.226″	.237″	.237″	.247″	.247″
SHIPPING WEIGHT: Topmast, lowermast, yardarm, gaff all connecting bands, ground protector and other standard fittings (excluding optional fittings) Lbs.	1023	1210	1521	1652	2057	2206	2549	3140	3501	4454	5116
OPTIONAL FITTINGS											
Foundation Tube	—Please See Information on Page 24.										
Eagle With Arrow Weathervane	24″	24″	24″	30″	30″	30″	36″	36″	42″	42″	48″
Ornamental Base or Flash Collar	—See Details of Stock Bases on Pages 22 & 23.										
Lighting Equipment	—Consult Manufacturers of Marine Lighting Equipment.										

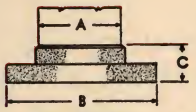
EXTRA HEAVY TYPE

POLE TYPE NUMBER	DM-40-EHT	DM-45-EHT	DM-50-EHT	DM-55-EHT	DM-60-EHT	DM-65-EHT	DM-70-EHT	DM-75-EHT	DM-80-EHT	DM-90-EHT	DM-100-EHT
ASSEMBLED EXPOSED HEIGHT OF TOPMAST & LOWERMAST ABOVE GROUND	40′	45′	50′	55′	60′	65′	70′	75′	80′	90′	100′
TOTAL ASSEMBLED LENGTH (including portion in ground)	44′	49½′	55′	60½′	66′	71½′	77′	82½′	88′	99′	110′
TOPMAST DIMENSIONS											
Exposed Height (above lowermast)	14′0″	16′0″	18′0″	19′9″	21′6″	23′6″	25′0″	27′0″	28′6″	32′6″	36′0″
Overlap (through connecting bands)	2′0″	2′0″	2′0″	2′3″	2′6″	3′0″	3′0″	3′0″	3′6″	3′6″	4′0″
Outside Diameter, Top	3¼″	3½″	3½″	4″	4″	4″	4″	4″	4″	4½″	4½″
Outside Diameter, Butt	5″	5 5/16″	6″	6⅝″	6⅝″	6⅝″	6⅝″	7⅝″	7⅝″	8⅝″	8⅝″
Tapered Portion	12′6″	14′8″	17′10″	18′9″	18′9″	18′9″	18′9″	25′10″	25′10″	29′6″	29′6″
Wall Thickness	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″
Cylindrical Butt	3′6″	3′3″	2′2″	3′3″	5′3″	7′9″	9′3″	4′2″	6′2″	6′6″	10′6″
Wall Thickness	.247″	.258″	.250″	.280″	.280″	.280″	.280″	.301″	.301″	.322″	.322″
ARROW WEATHERVANE	24″	24″	24″	30″	30″	30″	36″	36″	42″	42″	48″
LOWERMAST DIMENSIONS											
Height Above Ground	26′0″	29′0″	32′0″	35′3″	38′6″	41′6″	45′0″	48′0″	51′6″	57′6″	64′0″
Set in Foundation	4′0″	4′6″	5′0″	5′6″	6′0″	6′6″	7′0″	7′6″	8′0″	9′0″	10′0″
Outside Diameter, Top	5″	5 5/16″	6″	6⅝″	6⅝″	6⅝″	6⅝″	7⅝″	7⅝″	8⅝″	8⅝″
Outside Diameter, Butt	6″	6⅝″	7⅝″	8⅝″	9⅝″	10¾″	11¾″	12¾″	12¾″	14″	14″
Tapered Portion	7′2″	7′8″	11′7″	14′3″	21′6″	29′6″	36′6″	36′6″	36′6″	38′6″	38′6″
Wall Thickness	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″	.250″
Cylindrical Butt	20′10″	23′10″	23′5″	24′3″	20′6″	15′6″	12′0″	16′0″	19′6″	24′6″	31′6″
Wall Thickness	.250″	.280″	.301″	.322″	.342″	.365″	.375″	.375″	.375″	.500″	.500″
Cylindrical Portion (through connecting bands)	2′0″	2′0″	2′0″	2′3″	2′6″	3′0″	3′0″	3′0″	3′6″	3′6″	4′0″
Wall Thickness	.247″	.258″	.250″	.280″	.280″	.280″	.280″	.301″	.301″	.322″	.322″
YARDARM DIMENSIONS											
Length	11′0″	12′0″	13′6″	15′0″	16′6″	17′6″	19′0″	20′6″	22′0″	24′6″	27′0″
Outside Diameter, Center	4″	4½″	5″	5 5/16″	5 5/16″	5 5/16″	5 5/16″	6″	6″	6⅝″	6⅝″
Outside Diameter, Ends	2⅞″	2⅞″	3″	3″	3″	3″	3″	3¼″	3¼″	3½″	3½″
Cylindrical Portion, Center	2′0″	2′4″	2′8″	3′0″	3′4″	3′6″	3′10″	4′2″	4′6″	5′0″	5′6″
Tapered Portion, Ends	4′6″	4′10″	5′5″	6′0″	6′7″	7′0″	7′7″	8′2″	8′9″	9′9″	10′9″
Wall Thickness Throughout	.226″	.237″	.247″	.258″	.258″	.258″	.258″	.250″	.250″	.280″	.280″
GAFF DIMENSIONS											
Length	7′6″	8′0″	9′0″	10′0″	11′0″	12′0″	13′0″	14′0″	15′0″	16′6″	18′0″
Outside Diameter, Top	2⅞″	2⅞″	2⅞″	3″	3″	3″	3″	3¼″	3¼″	3½″	3½″
Outside Diameter, Butt	3½″	3½″	4″	4½″	4½″	4½″	4½″	5″	5″	5 5/16″	5 5/16″
Tapered Portion	5′8″	6′0″	6′9″	7′6″	8′3″	9′0″	9′9″	12′6″	12′6″	14′6″	14′6″
Wall Thickness	.216″	.216″	.226″	.237″	.237″	.237″	.237″	.250″	.250″	.250″	.250″
Cylindrical Butt	1′10″	2′0″	2′3″	2′6″	2′9″	3′0″	3′3″	1′6″	2′6″	2′0″	3′6″
Wall Thickness	.216″	.216″	.226″	.237″	.237″	.237″	.237″	.247″	.247″	.258″	.258″
SHIPPING WEIGHT: Topmost, lowermast, yardarm, gaff, all connecting bands, ground protector and other standard fittings (excluding optional fittings) Lbs.	1115	1391	1742	2249	2568	2816	3076	3601	4012	5477	6327
OPTIONAL FITTINGS (see table above)											

features

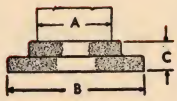
This line of standard metal bases can be supplied in cast iron (painted or galvanized), cast aluminum (having an 80-grit satin brush finish, waxed), cast bronze (having standard brush finish, clear lacquered) or cast Monel-S metal (having appearance of stainless steel but with greater strength, chemical analysis: Ni 63, Cu 30, Fe 2, Si 4 and Mn 0.7) having #4 finish; except that Design #2000 is supplied in painted or galvanized fabricated steel or in fabricated stainless steel; Design #1930 is furnished in painted or galvanized fabricated steel and in fabricated aluminum, bronze or stainless steel. Designs #2000, #2001, #2002 and #2003 are conventional flash collar types. Please see following page for additional standard metal bases. Details of other designs, not illustrated, are available on request.

EACH BASE FITS CERTAIN FLAGPOLES ONLY AND THE RANGE OF SUCH OUTSIDE POLE BUTT DIAMETERS IS SHOWN UNDER EACH BASE. BEFORE SPECIFYING, BE SURE TO ASCERTAIN WHETHER THE BASE SELECTED WILL FIT THE BUTT DIAMETER OF THE POLE PROPOSED. Metal bases for ground set poles are intended for ornamental use only and should not be considered as a functional part of the pole support.



No. 2000

A	B	C
3½" to 5"	11¾" dia.	4"
5 5/16" to 6⅝"	14" dia.	4"
7⅝" to 8⅝"	16" dia.	4"
9⅝" to 11¾"	20" dia.	5"
12¾" to 14"	22" dia.	5"



No. 2001

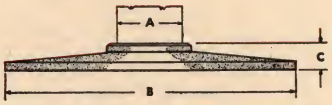
A	B	C
5" to 8"	14½" dia.	4"

No. 2002

A	B	C
8⅝" to 10"	17½" dia.	4"

No. 2003

A	B	C
10¾" to 12¾"	20½" dia.	5"



No. 1961

A	B	C
5" to 8⅝"	22" dia.	3½"

No. 1962

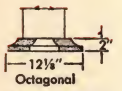
A	B	C
5" to 8⅝"	30" dia.	3½"

No. 1963

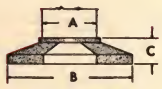
A	B	C
6" to 12¾"	38" dia.	3½"

No. 1964

A	B	C
8" to 16"	46" dia.	3½"



No. 1950
5" to 7⅝"



No. 1965

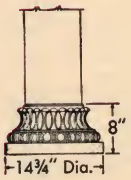
A	B	C
5" to 8⅝"	19⅝" oct.	4⅛"

No. 1975

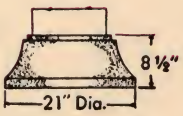
A	B	C
10" to 12"	23½" oct.	4⅛"



No. 1955
7" to 10"



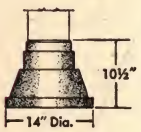
No. 1929
6⅝" to 8⅝"



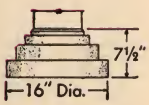
No. 1954
4½" to 12"



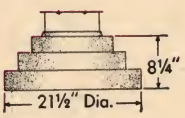
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6" to 10"



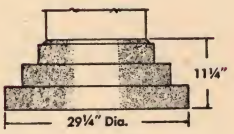
No. 1959
4½" to 8⅝"



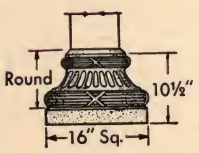
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5½" to 7⅝"



No. 1956
8" to 12"



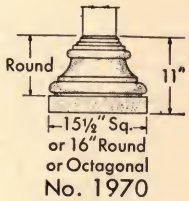
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12¾" to 16"



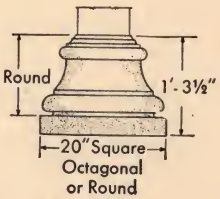
No. 2108
5½" to 7⅝"



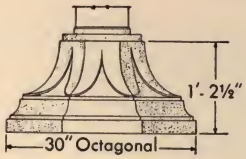
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8" to 12"



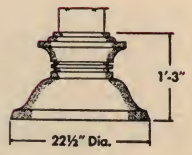
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5" to 6⅝"



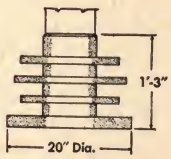
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7" to 8⅝"



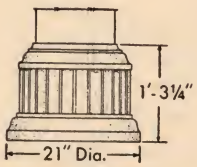
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7" to 10¾"



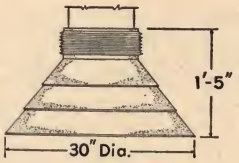
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5½" to 8⅝"



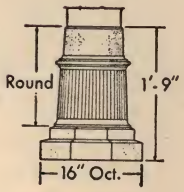
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5½" to 10"



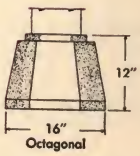
No. 1949
10" to 12¾"



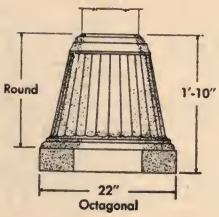
No. 1986
6" to 10¾"



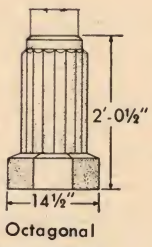
No. 1960
7" to 8⅝"



No. 1957
5½" to 8"



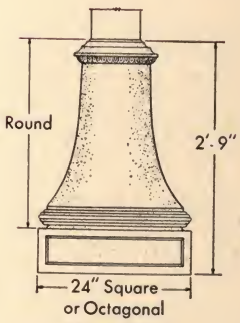
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5½" to 10¾"



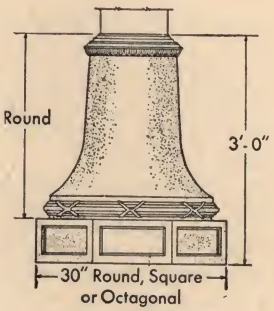
No. 1966
5½" to 7⅝"



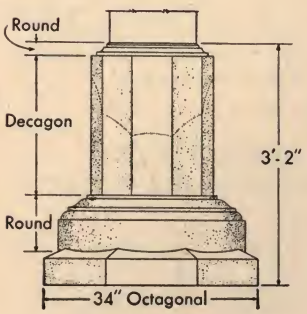
No. 1948
6" to 8⅝"



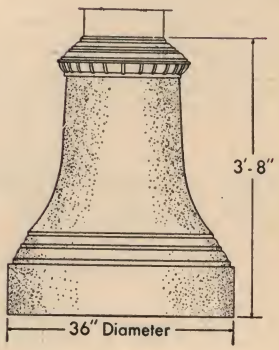
No. 1902
7" to 9⅝"



No. 1999
8" to 12"



No. 1934
10" to 14"



No. 1947
12" to 16"

For the convenience of the Architect, four different foundation arrangements are detailed for metal flagpoles and formulae for minimum foundation dimensions are indicated.

Note that all foundation tubes have a low cost, effective lightning ground spike attached directly to the base plate of tube allowing full lightning charge to pass directly into soil under foundation. The plate support welded to the ground spike distributes the weight of the foundation tube at bottom of excavation and assists in preventing tube from sinking below required level while footing and foundation tube are being poured. The lightning ground spike attached to the base plate of the foundation tube provides more positive protection against damage to the foundation by lightning than the obsolete method of using a separate ground rod alongside the foundation connected to the pole by means of a copper wire running horizontally through the side of the foundation at a point considerably above the base plate. The separate ground rod method with horizontal copper wire is not fully effective because most of the lightning charge does not by-pass over the horizontal wire but is conducted naturally to the base plate where no ground spike is present to pass the charge through the concrete footing to soil.

Hardwood wedges are recommended as being completely satisfactory for plumbing the flagpole at the top of the corrugated steel foundation tube and can be readily made at the erection site to suit the actual field conditions. Upper metal wedges are not recommended as they are difficult to modify at the erection site when necessary and usually cannot be properly prefabricated to meet final field requirements.

KEY TO STANDARD FOUNDATION DIMENSIONS

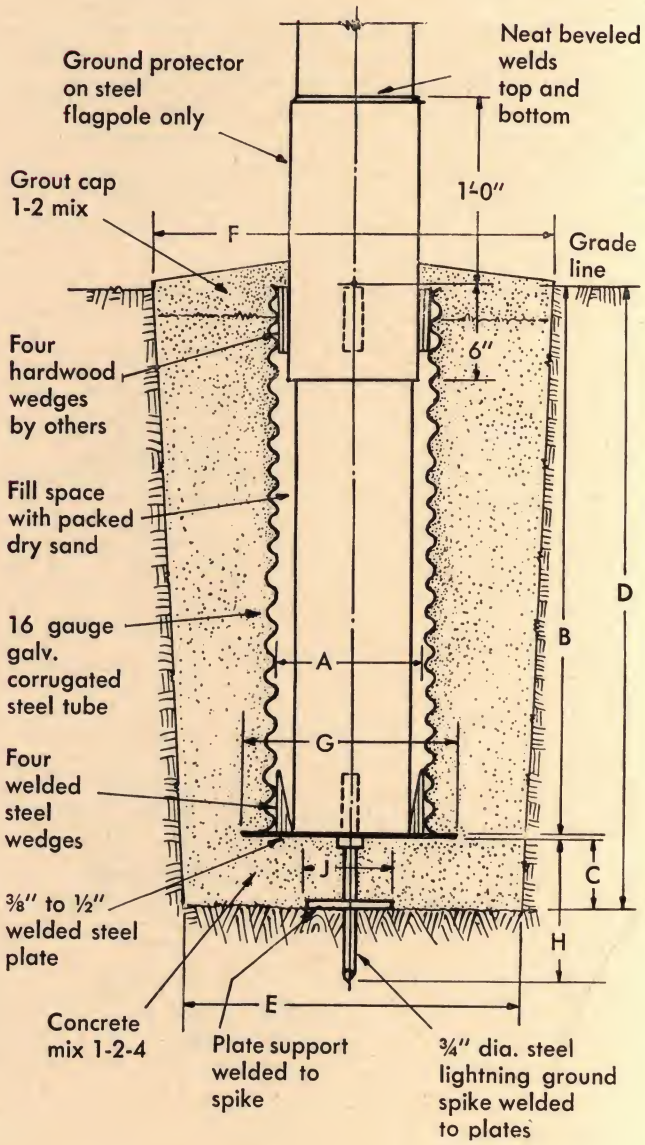
A—Inside Diameter of Foundation Tube and should be about 3" larger than outside butt diameter of flagpole
B—Distance Pole Sets in Foundation and should be 10% of pole height above ground
C—Thickness of Footing Under Base Plate and should be at least 15% in inches of pole height in feet with 4" minimum thickness
D—Depth of Excavation and should be distance pole sets in foundation plus thickness of footing
E—Diameter of Foundation At Bottom and should be at least four times outside butt diameter of pole and in no case less than 24" diameter
F—Diameter of Foundation At Top and should be at least five times outside butt diameter of pole and in no case less than 30" diameter
G—Size of Base Plate of Foundation Tube and should be at least 6" larger square than inside diameter of foundation tube
H—Length of Lightning Ground Spike Attached To Base Plate of Foundation Tube and should extend below footing for a distance at least equivalent to the footing thickness
J—Size of Support Plate Attached to Ground Spike and should be about 25% of area of base plate

Recommended foundation dimensions above are minimum for good, firm, dry soil only. If heavy frost conditions exist at site, invert Dimensions E & F. Where there are extremes of sand, muck, water, frost, etc. please consult us before finally specifying foundation dimensions. If Type III foundation is contemplated, the standard foundation dimensions should be properly increased to compensate for the additional weight of metal base, stone work, etc.

TABLE OF DIMENSIONS—GALVANIZED CORRUGATED STEEL FOUNDATION TUBES

For Pole Butt Diameters	Use This Tube Diameter	Size of Base Plate	Size of Plate Support
Up to 5½" O.D.	8" I.D.	14" x 14" x ⅜"	7" x 7" x ⅜"
5⁹⁄₁₆" O.D. to 7" O.D.	10" I.D.	16" x 16" x ½"	8" x 8" x ½"
7⅝" O.D. to 8⅝" O.D.	12" I.D.	18" x 18" x ½"	9" x 9" x ½"
9⅝" O.D. to 12" O.D.	15" I.D.	21" x 21" x ½"	10" x 10" x ½"
12¾" O.D. to 14" O.D.	18" I.D.	24" x 24" x ½"	12" x 12" x ½"
15" O.D. to 16" O.D.	21" I.D.	27" x 27" x ½"	14" x 14" x ½"
18" O.D. to 20" O.D.	24" I.D.	30" x 30" x ½"	15" x 15" x ½"

type I—for flagpole, without metal base



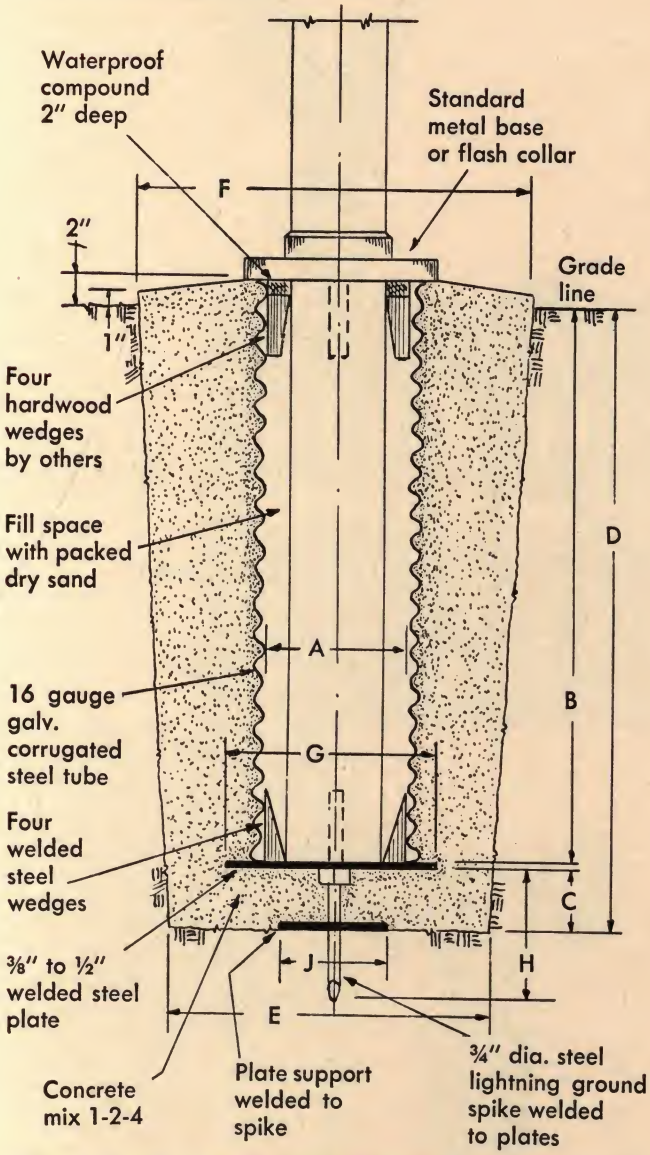
Type I is the conventional foundation arrangement for use when no metal base or flash collar is desired and utilizes the low-cost 16-ga. galvanized corrugated steel foundation tube with the effective steel lightning ground spike attached to the base plate. The corrugations make the 16-ga. tube as strong as a 10-ga. non-corrugated plain round tube and provide a better means for the concrete to key to outside of the tube.

The foundation tube extends to grade line and the grout cap is installed after main foundation has been poured and flagpole has been erected. The grout cap is usually 5" thick (3" below grade and 2" above grade) around pole and slopes to 4" thick (3" below grade and 1" above grade) at periphery.

The ground protector illustrated is intended for use on steel flagpoles only and provides additional wall thickness at grade line where rust is most likely to attack the steel pole. The ground protector offers no advantage on poles of other metals and should be omitted if the flagpole is aluminum, stainless steel or bronze.

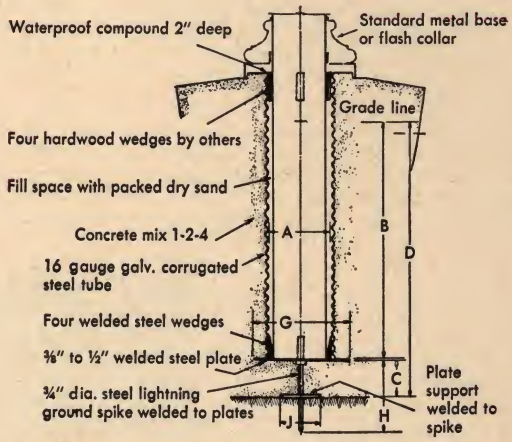
For standard dimensions of galvanized corrugated steel foundation tubes, etc. for various butt diameter flagpoles see table at bottom of preceding column.

type II-A—for flagpole with metal base and conventional concrete cap



Type II-A is also a conventional foundation arrangement for use when standard metal base or flash collar is required, a low concrete cap is desired and no stone work is used. The concrete cap extends 2" above grade around pole and slopes to 1" above grade at periphery. The shape of cap may be round, square or octagonal, etc. as preferred by the Architect. The economical 16-ga. galvanized corrugated steel foundation tube extends to top of concrete cap and cap is an integral part of the monolithic foundation. After flagpole is wedged plumb in foundation tube and before metal base or flash collar is positioned atop concrete cap, the space between flagpole and foundation tube should be thoroughly packed with clean dry sand to within 2" of top of foundation tube. Any portion of wood wedges exposed above tube should be removed and waterproof cement or mastic installed in remaining 2" high space between flagpole and foundation tube. The exposed surfaces of concrete cap should be metal-troweled to a smooth finish. The ground protector, as illustrated in Type I for steel flagpoles only, is not supplied for Type II-A poles as it serves no useful purpose when a metal base or flash collar is used. Flash collars are strictly ornamental when installed over a ground protector and both should be omitted when some other type of standard metal base is supplied. For standard dimensions of galvanized corrugated steel foundation tubes, etc. for various butt diameter flagpoles see table at bottom of left column on page 24.

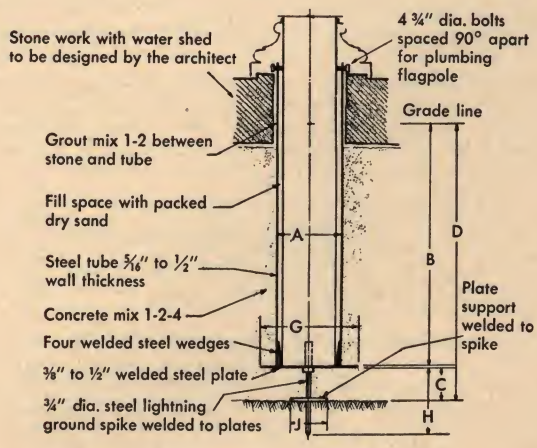
type II—for flagpole with metal base and raised concrete cap



Type II is similar to Type II-A foundation arrangement utilizing standard metal base or flash collar and 16-ga. galvanized corrugated steel foundation tube but having raised concrete cap, 6" above grade around pole and sloping to 4" above grade at periphery. These heights can be varied to suit the Architect's preference. The shape of concrete cap may be round, square, octagonal, etc. as desired.

For standard dimensions of galvanized corrugated steel foundation tubes, etc. for various butt diameter flagpoles see table at bottom of left column on page 24.

type III—for flagpole with metal base and stone work



Type III is most ideal foundation tube arrangement where standard or special designed metal base and stone work are desired. No ground protector is necessary on flagpole and no flash collar is required under the stone work. The entire foundation tube is made of seamless steel pipe having 5/16" to ½" wall thickness. Centering tap bolts instead of wedges are used at top of foundation tube. The tube terminates about 2" above top of stone work. The inside diameter of the steel pipe foundation tube should be 2½" to 3" larger than outside butt diameter of the flagpole. The standard steel pipe foundation tubes have the following inside diameters and wall thicknesses: 8" I.D. x .322" wall; 9" I.D. x .342" wall; 10" I.D. x .365" wall; 11" I.D. and 12" I.D. x .375" wall; 13" I.D., 14" I.D., 15" I.D., 17" I.D. and 19" I.D. x .500" wall.

FLAGPOLE FITTINGS

specifications for regular steel pole fittings

Ball—The ball shall be .... inches in diameter (see recommended sizes in tables of pole dimensions) and constructed of 20-oz. copper covered with genuine 23-karat gold leaf over three coats of waterproof paint and one coat of waterproof gold size. Ball shall be mounted on ¾-in. seamless brass tube over ⅝-in. noncorrodible rod attached to truck.

Standard Truck—(To be used on flagpoles having top diameters up to 3½-in. only.) Provide a Lingo standard non-fouling ball bearing revolving truck with (galvanized cast iron) (bronze) body, revolving on manganese bronze spindle with ball race containing twenty-six ¼-in. stainless steel balls. Truck to be fitted with two 2⅜-in. dia. nylon-bushed bronze sheaves rotating on ⅜-in. tobin bronze pins.

Extra Heavy Truck—(To be used on flagpoles having top diameters 4-in. or over.) Provide a Lingo extra heavy non-fouling all bronze ball bearing revolving truck, revolving on manganese bronze spindle with ball race containing thirty ¼-in. stainless steel balls. Truck to be fitted with two 4-in. dia. nylon-bushed bronze sheaves rotating on ½-in. monel metal pins.

Halyards—Provide two ⅜-in. dia. U. S. standard manila bolt rope halyards (Alternate—5/16-in. #10 or ⅜-in. #12 cotton braided rope halyards) each with two bronze swivel snaps for securing to flag.

Cleats—Provide two 9-in. (cast iron galvanized) (cast bronze) cleats each tapped to pole with two 5/16-in. flat head (galvanized stove bolts) (brass machine screws).

Note Regarding Trucks—Lingo trucks are of revolving type. Stationary non-revolving trucks will not shift with wind causing flag to wrap around pole.

Notes Regarding Halyard Rope and Revolving Cleats—Manila or cotton rope gives excellent service and can be mildew treated when required. We can supply cotton rope having bronze center which is more costly but exceptionally strong and not easily cut by petty thieves. Avoid wire rope and sash chain halyards because whipping of metal against pole destroys pole finish. Revolving cleats can be furnished but are not recommended as being practical in service.

description of dispensable extras

Cleat Covers—(1 per cleat) Standard galvanized cast iron box, built-in hinge and hasp arrangement, separate galvanized staple and 6-lever padlock; box and staple attached to pole with five tamper-proof screws inside box.

Spread Eagle on Ball—Heavy copper, hand made, on ⅝-in. to ¾-in. rod; eagle and ball covered with 23 karat genuine gold leaf over three coats of waterproof paint and one coat of waterproof size. Wingspread in inches should be approximately 50% of pole height in feet. Standard sizes are 18" to 48" in 6" multiples.

Eagle Weathervane—Heavy copper eagle, balls and vane; rod, cardinal points and scrolls, bronze. Eagle, balls and cardinal points covered with 23 karat genuine gold leaf over three coats of waterproof paint and one coat of waterproof size. Wingspread in inches should be approximately 50% of pole height in feet. Standard sizes are 24" to 48" in 6" multiples.

Arrow Weathervane—Heavy copper arrow and balls; rod, cardinal points and scrolls bronze. Arrow, balls and cardinal points covered with 23 karat genuine gold leaf over three coats of waterproof paint and one coat of waterproof size. Arrow length in inches should be approximately 50% of pole height in feet. Standard sizes are 24" to 48" in 6" multiples.

For Metal Bases—See pages 22 & 23.

For Types of Foundation Tubes—See pages 24 & 25.

Tubular Steel Horizontal Yard-arms or Cross-arms for Single-mast Poles are also furnished to order in cases where it is desired to fly at least three flags on the pole; the American flag at the top and signal pennants or competing school flags from the ends of the yard-arm. The yard-arm should be located at the ¾ elevation of pole and length should be 25% of pole height. Bronze swivel blocks, standard halyards, flag snaps and extra cleats are supplied with each yard-arm.

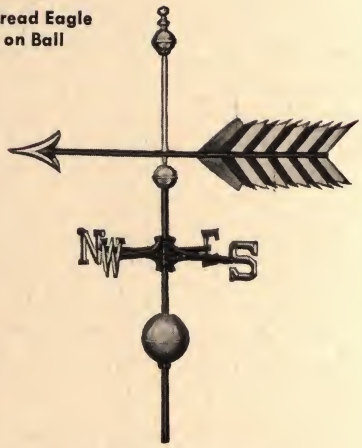
Tubular Steel Gaffs and Fittings for Single-mast poles can also be supplied if desired with the yard-arm arrangement. The gaff length should be about ⅔ of yard-arm length and should be projected at an angle of 60 degrees from the vertical.



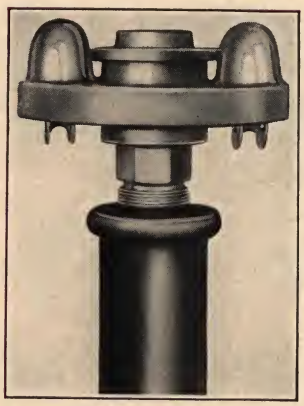
Spread Eagle on Ball



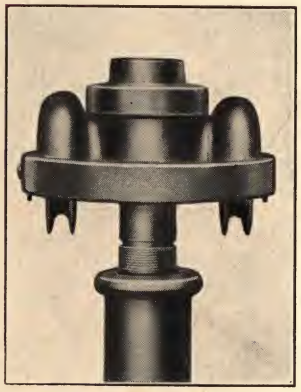
Eagle Weathervane



Arrow Weathervane



Standard Truck



Extra Heavy Truck



Gold Leafed Copper Ball



Cleat



Cleat Cover

section 2

LINGO
VERTICAL WALL SET
flagpoles



ALUMINUM

STEEL

STAINLESS STEEL

BRONZE

35-ft. Heavy Duty Steel Flagpole
with W-19 Wall Brackets
St. Annunciata School
Chicago, Ill.
Architect: Thomas E. Cooke
Chicago

aluminum—steel—stainless steel—bronze

Vertical wall set flagpoles are made in aluminum, steel, stainless steel and bronze, all of tapered construction, standardized in various lengths, diameters, wall thicknesses, etc., as shown in the table of dimensions. Nine different standard wall bracket arrangements are detailed for the support of the poles (see page 30). The brackets are made to order for individual projects and are especially designed so that the pole will clear the particular overhang of the capstone, etc. The pole should be housed in the bracket arrangement for a vertical distance of not less than 10% of the overall pole length. Bracket arrangements W-16 W-17, W-18, W-19, W-23 and W-24 each consist of two individual brackets but a third bracket (uppermost) can be furnished for greater support or enhanced appearance, if so preferred by the Architect. Bracket arrangements W-20, W-21 and W-22 each consist of one complete bracket but a separate single upper bracket of the W-16, W-17, W-18, W-19, W-23 or W-24 type can be added if so desired. When standard bracket arrangements are so supplemented, the Architect should clearly revise the standard specifications accordingly. FOR STANDARD SPECIFICATIONS, PLEASE SEE PAGE 29.

Aluminum flagpoles are furnished of cone tapered construction in standard lengths from 15 to 44 feet and are supported by either heli-arc welded fabricated aluminum brackets or by less costly electric welded fabricated steel brackets. The aluminum brackets have an 80-grit satin brush finish, waxed, and the steel brackets are hot-dip galvanized. All welding is done by certified welding operators. The aluminum poles are made of 6063-T6 seamless aluminum, cold rolled, with .188-in. minimum wall thickness throughout and the tapered portion has a uniform conical taper of 1-in. in approximately each 5½ feet. The diameters, tapered lengths and wall thickness shown in the table of dimensions are the minimum consistent with good engineering practice for aluminum poles. The exterior pole surface is machined to an 80-grit satin brush finish then waxed. Before shipment, each pole is spirally wrapped with heavy paper, covered with burlap, wood-stripped and steel-banded for protection during transit. NO PAINTING OF ALUMINUM POLES IS REQUIRED OR RECOMMENDED (See page 14). The poles can be shipped in one piece without field joints but a substantial saving in freight cost will result if the 38½ ft. and 44 ft. poles are each shipped in two pieces with a self-aligning internal splicing sleeve arrangement requiring no field welding or grinding.

Steel flagpoles are furnished in Light Duty and Heavy Duty tapered construction in standard lengths from 15 to 30 feet and are supported by electric welded fabricated steel wall brackets. Steel poles and brackets are usually painted but can be hot-dip galvanized if for locations where salt air prevails. Light Duty poles are recommended where installation is required on comparatively light building walls or where low cost is a factor. The poles are of special cone tapered construction with wall thickness varying from .120-in. to .156-in., and the tapered portion has a uniform taper of 1" in each 8½ to 10 feet. Heavy Duty steel poles are of standard cone tapered construction with ¼-in. minimum wall thickness throughout and the tapered portion has a uniform conical taper of 1-in. in approximately each 7 feet.

Stainless steel flagpoles are made to order only of genuine Venetian Entasis Tapered construction in standard lengths from 20 to 30 feet and are supported by fabricated stainless steel brackets. The stainless steel is Type #304 polished to a #4 finish. The wall thickness of the poles varies from .226-in. to .247-in. The ball can be supplied in either stainless steel or chrome-plated copper. The truck and cleats can be supplied either in Monel-S metal (similar to stainless steel) or in chrome-plated bronze. The swivel snaps are furnished in chrome-plated bronze only.

Bronze flagpoles are made to order only of genuine Venetian Entasis Tapered construction in standard lengths from 20 to 30 feet and are supported by fabricated bronze brackets. The material for pole and brackets is commercial bronze and both pole and brackets are polished to a standard brush finish and then clear lacquered. The wall thickness varies from .226-in. to .247-in. The ball is gold leafed copper, and the truck, cleats and swivel snaps are all-bronze.

dimensions

Overall Length in Feet	Pole Type and Metal	Outside Diameter in Inches			Pole Wall Thickness	Pole Weight Lbs.	Tapered Portion	Cylindrical Butt Portion
		Butt	Top	Ball				
15	Standard Type Aluminum	4	2⅜	4	.188	35	9′ 0″	6′ 0″
20	Standard Type Aluminum	4½	2⅞	5	.188	55	9′ 0″	11′ 0″
23	Standard Type Aluminum	5	3¼	5	.188	80	9′ 8″	13′ 4″
28	Standard Type Aluminum	5½	3½	6	.188	110	11′ 0″	17′ 0″
33	Standard Type Aluminum	6	3½	6	.188	140	13′ 9″	19′ 3″
38½	Standard Type Aluminum	7	3½	6	.188	185	19′ 3″	19′ 3″
44	Standard Type Aluminum	8	3½	8	.188	250	24′ 9″	19′ 3″
15	Light Duty Steel	3	1⅞	4	.120	75	12′ 0″	3′ 0″
20	Light Duty Steel	4	2⅜	5	.134	105	15′ 0″	5′ 0″
25	Light Duty Steel	4½	2⅜	5	.156	175	19′ 0″	6′ 0″
30	Light Duty Steel	5	2⅜	6	.156	225	23′ 0″	7′ 0″
20	Heavy Duty Steel	5	3¼	5	.250	245	12′ 6″	7′ 6″
25	Heavy Duty Steel	5⅝	3¼	5	.250	330	16′ 6″	8′ 6″
30	Heavy Duty Steel	6	3¼	6	.250	420	19′ 6″	10′ 6″
20	Standard Stainless Steel	4	2½	5	.226	150	13′ 0″	7′ 0″
25	Standard Stainless Steel	4½	2⅞	5	.237	215	16′ 0″	9′ 0″
30	Standard Stainless Steel	5	2⅞	6	.247	285	19′ 0″	11′ 0″
20	Standard Bronze	4	2½	5	.226	165	13′ 0″	7′ 0″
25	Standard Bronze	4½	2⅞	5	.237	235	16′ 0″	9′ 0″
30	Standard Bronze	5	2⅞	6	.247	320	19″ 0′	11′ 0″

specifications

for aluminum flagpole

Furnish and erect where shown on plans a Cone Tapered Aluminum flagpole for vertical wall setting, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, New Jersey. Flagpole to be Standard Type . . . . feet overall length with . . . . inches outside butt diameter tapering conically through upper . . . . feet . . . . inches to . . . . inches outside top diameter. The pole shall be machine-made of 6063-T6 seamless cold drawn aluminum, with a minimum wall thickness of .188-in. and shall have a uniform conical taper of 1" in each 5'6" throughout the tapered portion. The pole shall have a smooth uninterrupted exterior surface throughout without offsets and shall be shipped in one piece without field joints unless a substantial saving in freight cost is possible by a two piece shipment. The exterior of the pole shall be machined to an 80-grit satin brush finish and then waxed. Painting of the aluminum will not be permitted. Before shipment, pole shall be spirally wrapped with heavy paper, covered with burlap, wood-stripped and steel-banded for protection during transit. If pole is shipped in two pieces, the field joint shall consist of a snug-fitting, precision-made, internal splicing sleeve arrangement so designed that self-alignment of pole sections in field is assured and no field welding nor grinding is necessary.

The flagpole shall be equipped with one . . . . inch diameter 14-ga. aluminum ball having satin brush finish and waxed, mounted on a 5/8-in. dural rod attached to truck; one standard non-fouling ball bearing revolving truck having aluminum body, aluminum spindle, stainless steel balls, aluminum sheaves and dural pins; one 5/16-in. #10 cotton braided rope halyard with two aluminum swivel snaps; one 9-in. cast aluminum cleat and one set of standard (electric welded galvanized fabricated steel) (heli-arc welded fabricated aluminum) wall brackets, Design No. (W-16) (W-17) (W-18) (W-19) (W-20) (W-21) (W-22) (W-23) (W-24) and supplied with (galvanized steel) (duralumin) anchor bolts, etc.

specifications

for steel flagpole

Furnish and erect where shown on plans a Cone Tapered (Light Duty) (Heavy Duty) steel flagpole for vertical wall setting, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, New Jersey. Flagpole to be .... feet overall length with .... inches outside butt diameter tapering conically through the upper .... feet to .... inches outside top diameter with .... inch wall thickness throughout. The pole shall have a smooth uninterrupted exterior surface throughout without visible joints and offsets and shall be shipped in one piece without field joints. The flagpole shall be painted one shop coat of red lead and oil.

The flagpole shall be equipped with one .... inch diameter gold leafed copper ball with brass ball rod, one standard non-fouling ball bearing revolving truck (Alternate: Bronze pole cap with bronze swivel block for Light Duty poles), one 9-in. galvanized cleat, one 3/8-in. manila bolt rope halyard with two bronze swivel snaps and one set of painted standard steel wall brackets, Design No. (W-16) (W-17) (W-18) (W-19) (W-20) (W-21) (W-22) (W-23) (W-24) and supplied with steel anchor bolts, etc. (Note to Specifications Writer: If pole and bracket arrangement are to be galvanized after fabrication by the hot-dipped process, please so indicate and omit painting specifications.)

specifications

for stainless steel flagpole

Furnish and erect where shown on plans a standard Genuine Venetian Entasis Tapered stainless steel flagpole for vertical wall setting, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, New Jersey. Flagpole to be . . . . feet overall length with . . . . inches outside butt diameter tapering with Venetian Entasis through the upper . . . . feet to . . . . inches outside top diameter. The flagpole shall be made of Type #304 stainless steel having a minimum wall thickness of . . . . inches throughout. The pole shall have a smooth uninterrupted exterior surface throughout without visible joints and offsets and shall be shipped in one piece without field joints. The exterior surface of the flagpole shall have a #4 standard finish and before shipment the pole shall be spirally wrapped with heavy paper, covered with burlap, wood-stripped and steel-banded for protection during transit.

The flagpole shall be equipped with one . . . . inch diameter spun (stainless steel) (chrome plated copper) ball with (stainless steel) (chrome plated brass) ball rod; one standard ball bearing revolving truck having (Monel-S) (chrome plated bronze) body with spindle and sheaves of same metal and finish, stainless steel balls and sheave pins; one 5/16-in. #10 cotton braided rope halyard with two chrome plated bronze swivel snaps; one 9-in. (Monel-S) (chrome plated bronze) cleat and one set of standard fabricated stainless steel wall brackets, Design No. (W-16) (W-17) (W-18) (W-19) (W-20) (W-21) (W-22) (W-23) (W-24) having #4 finish and supplied with stainless steel anchor bolts, etc.

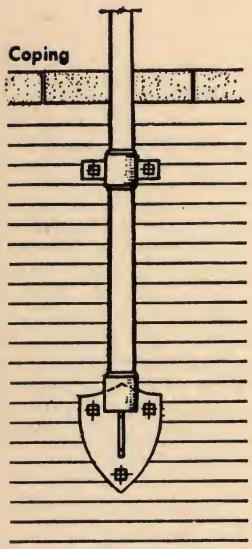
specifications

for bronze flagpole

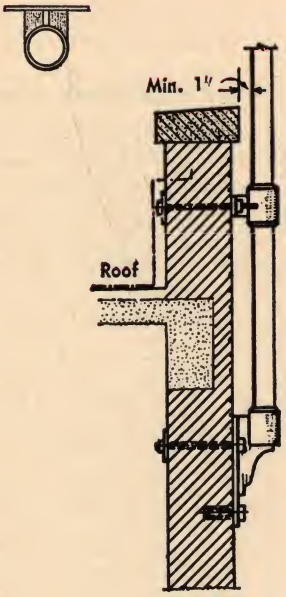
Furnish and erect where shown on plans a standard Genuine Venetian Entasis Tapered bronze flagpole for vertical wall setting, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, New Jersey. Flagpole to be .... feet overall length with .... inches outside butt diameter tapering with Venetian Entasis through the upper .... feet to .... inches outside top diameter. The flagpole shall be made of commercial bronze having a minimum wall thickness of .... inches throughout. The pole shall have a smooth uninterrupted exterior surface throughout without visible joints or offsets and shall be shipped in one piece without field joints. The exterior surface of the flagpole shall have a standard brush finish, clear lacquered and before shipment the pole shall be spirally wrapped with heavy paper, covered with burlap, wood-stripped and steel-banded for protection during transit.

The flagpole shall be equipped with one .... inch diameter gold leafed spun copper ball with brass ball rod, one all-bronze standard ball bearing revolving truck, one 5/16-in. #10 cotton braided rope halyard with two bronze swivel snaps, one 9-in. bronze cleat and one set of standard fabricated bronze wall brackets, Design No. (W-16) (W-17) (W-18) (W-19) (W-20) (W-21) (W-22) (W-23) (W-24) having standard brush finish, clear lacquered and supplied with bronze anchor bolts, etc.

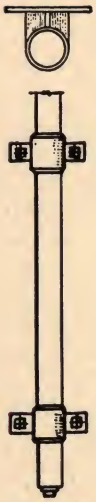
standard brackets



W-16



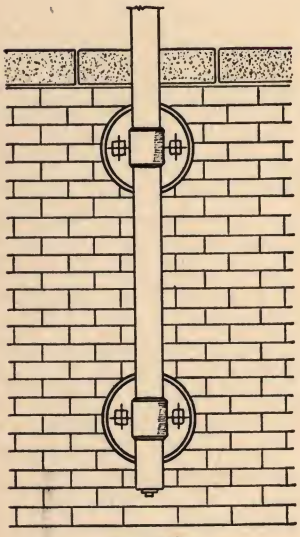
W-16



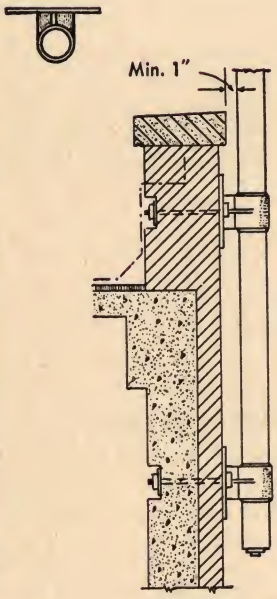
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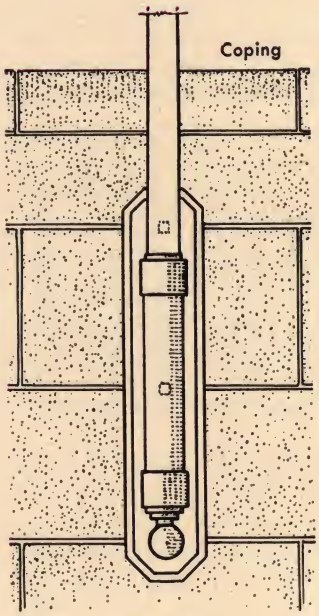
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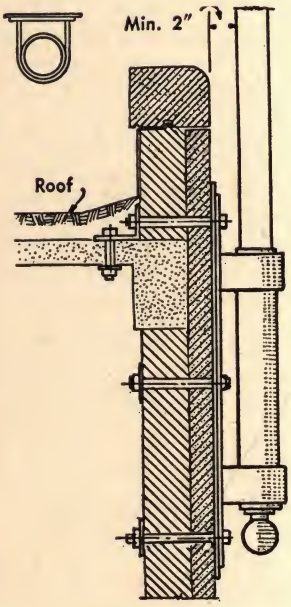
W-19



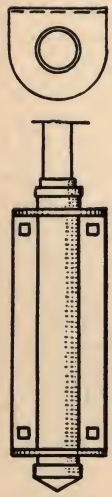
W-19



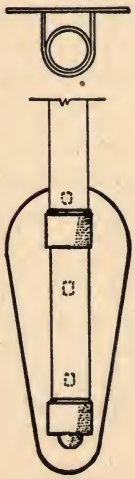
W-20



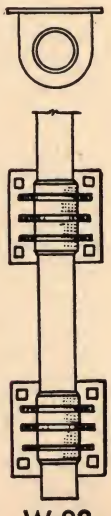
W-20



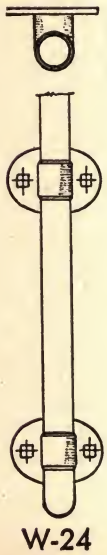
W-21



W-22



W-23



W-24

wall bracket dimensions, anchor bolt spacing, etc.

W-16

Pole Butt Diameter	Wall Plate	Horizontal Bolt Spacing	Vertical Bolt Spacing	Bolt Diameter
UPPER BRACKET				
3″ to 4″	10″ x 3″ x ⅜″	7″ ℄ to ℄		⅝″
4½″ to 6″	12″ x 4″ x ½″	9″ ℄ to ℄		¾″
6⅝″ to 8″	14″ x 6″ x ½″	11″ ℄ to ℄		¾″
LOWER BRACKET				
3″ to 4″	10″ x 13″ x ⅜″	7″ ℄ to ℄	9¼″ ℄ to ℄	⅝″
4½″ to 6″	12″ x 15″ x ½″	9″ ℄ to ℄	11¼″ ℄ to ℄	¾″
6⅝″ to 8″	14″ x 17″ x ½″	11″ ℄ to ℄	13¼″ ℄ to ℄	¾″

Note: Vertical distance between brackets measured from centerline of top bolts of lower bracket upward to centerline of upper bracket and must be at least 10% of overall pole length.

W-17

Pole Butt Diameter	Wall Plate	Horizontal Bolt Spacing	Bolt Diameter
UPPER AND LOWER BRACKETS			
3″ to 4″	10″ x 3″ x ⅜″	7″ ℄ to ℄	⅝″
4½″ to 6″	12″ x 4″ x ½″	9″ ℄ to ℄	¾″
6⅝″ to 8″	14″ x 6″ x ½″	11″ ℄ to ℄	¾″

Note: Vertical distance between brackets measured from center line of lower bracket upward to centerline of upper bracket and must be at least 10% of overall pole length.

W-18

Pole Butt Diameter	Wall Plate	Horizontal Bolt Spacing	Vertical Bolt Spacing	Bolt Diameter
UPPER BRACKET				
3″ to 4″	10″ x 3″ x ⅜″	7″ ℄ to ℄		⅝″
4½″ to 6″	12″ x 4″ x ½″	9″ ℄ to ℄		¾″
6⅝″ to 8″	14″ x 6″ x ½″	11″ ℄ to ℄		¾″
LOWER BRACKET				
3″ to 4″	10″ x 10″ x ⅜″	7″ ℄ to ℄	7″ ℄ to ℄	⅝″
4½″ to 6″	12″ x 12″ x ½″	9″ ℄ to ℄	9″ ℄ to ℄	¾″
6⅝″ to 8″	14″ x 14″ x ½″	11″ ℄ to ℄	11″ ℄ to ℄	¾″

Note: Vertical distance between brackets measured from center of lower bracket plate upward to centerline of upper bracket and must be at least 10% of overall pole length.

W-19

Pole Butt Diameter	Wall Plate	Horizontal Bolt Spacing	Bolt Diameter
UPPER AND LOWER BRACKETS			
3″ to 4″	10″ dia. x ⅜″	7″ ℄ to ℄	⅝″
4½″ to 6″	12″ dia. x ½″	9″ ℄ to ℄	¾″
6⅝″ to 8″	14″ dia. x ½″	11″ ℄ to ℄	¾″

Note: Vertical distance between brackets measured from centerline of lower bracket upward to center line of upper bracket and must be at least 10% of overall pole length.

W-20

Overall Pole Length	Pole Butt Diameter	Wall Plate	Vertical Bolt Spacing	Bolt Diameter
15′	3″ to 4″	6″ x 2′8″ x ½″	11″ ℄ to ℄	⅝″
20′	4″ to 5″	8″ x 3′4″ x ½″	15½″ ℄ to ℄	⅝″
23′	5″	8″ x 3′9″ x ½″	17½″ ℄ to ℄	⅝″
25′	4½″ to 5⅝″	9″ x 3′11″ x ½″	18½″ ℄ to ℄	¾″
28′	5½″	9″ x 4′3″ x ½″	20½″ ℄ to ℄	¾″
30′	5″ to 6″	9″ x 4′5″ x ½″	21½″ ℄ to ℄	¾″
33′	6″	9″ x 4′9″ x ½″	23½″ ℄ to ℄	¾″
38½′	7″	10″ x 5′3″ x ½″	26½″ ℄ to ℄	1″
44′	8″	11″ x 5′10″ x ½″	30″ ℄ to ℄	1″

W-21

Over-all Pole Length	Pole Butt Diameter	Wall Plate	Horizontal Bolt Spacing	Vertical Bolt Spacing	Bolt Diam-eter
15′	3″ to 4″	10″ x 1′1″ x ⅜″	7″ ℄ to ℄	10″ ℄ to ℄	⅝″
20′	4″ to 5″	12″ x 1′7″ x ½″	9″ ℄ to ℄	16″ ℄ to ℄	⅝″
23′	5″	12″ x 1′11″ x ½″	9″ ℄ to ℄	20″ ℄ to ℄	⅝″
25′	4½″ to 5⅝″	12″ x 2′1″ x ½″	9″ ℄ to ℄	22″ ℄ to ℄	¾″
28′	5½″	12″ x 2′5″ x ½″	9″ ℄ to ℄	26″ ℄ to ℄	¾″
30′	5″ to 6″	12″ x 2′7″ x ½″	9″ ℄ to ℄	28″ ℄ to ℄	¾″
33′	6″	12″ x 2′11″ x ½″	9″ ℄ to ℄	32″ ℄ to ℄	¾″
38½′	7″	14″ x 3′5″ x ½	11″ ℄ to ℄	38″ ℄ to ℄	¾″
44′	8″	14″ x 4′0″ x ½″	11″ ℄ to ℄	45″ ℄ to ℄	¾″

W-22

Overall Pole Length	Pole Butt Diameter	Wall Plate	Vertical Bolt Spacing	Diameter
15′	3″ to 4″	12″ x 2′2″ x ⅜″	7″ ℄ to ℄	⅝″
20′	4″ to 5″	13″ x 2′8″ x ½″	10″ ℄ to ℄	⅝″
23′	5″	13″ x 3′0″ x ½″	12″ ℄ to ℄	⅝″
25′	4½″ to 5⅝″	14″ x 3′4″ x ½″	12″ ℄ to ℄	¾″
28′	5½″	14″ x 3′8″ x ½″	14″ ℄ to ℄	¾″
30′	5″ to 6″	14″ x 3′10″ x ½″	15″ ℄ to ℄	¾″
33′	6″	14″ x 4′2″ x ½″	17″ ℄ to ℄	¾″
38½′	7″	15″ x 4′8″ x ½″	20″ ℄ to ℄	1″
44′	8″	16″ x 5′3″ x ½″	23½″ ℄ to ℄	1″

W-23

Pole Butt Diameter	Wall Plate	Horizontal Bolt Spacing	Vertical Bolt Spacing	Bolt Diameter
UPPER AND LOWER BRACKETS				
3″ to 4″	10″ x 10″ x ⅜″	7″ ℄ to ℄	7″ ℄ to ℄	⅝″
4½″ to 6″	12″ x 12″ x ½″	9″ ℄ to ℄	9″ ℄ to ℄	¾″
6⅝″ to 8″	14″ x 14″ x ½″	11″ ℄ to ℄	11″ ℄ to ℄	¾″

Note: Vertical distance between brackets measured from centerline of lower bracket plate upward to centerline of upper bracket plate and must be at least 10% of overall pole length.

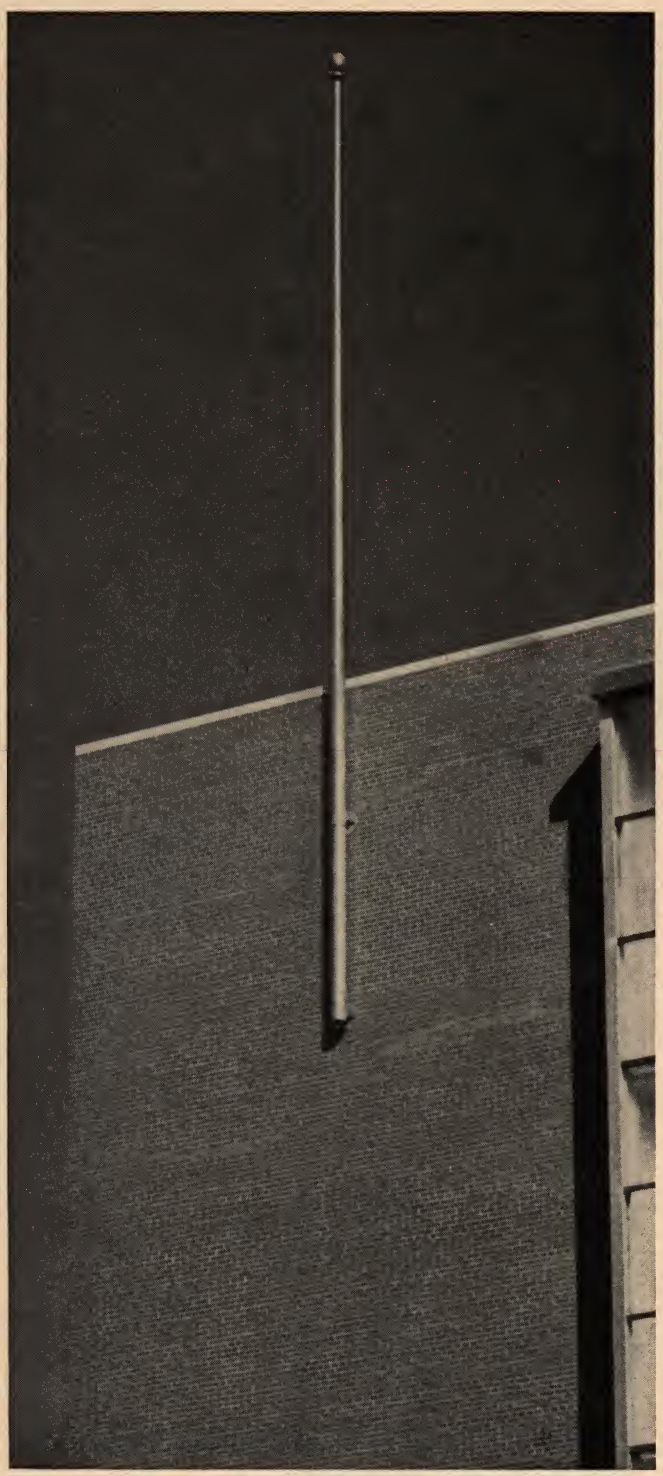
W-24

Pole Butt Diameter	Wall Plate	Horizontal Bolt Spacing	Bolt Diameter
UPPER AND LOWER BRACKETS			
3″ to 4″	10″ x 6″ x ⅜″	7″ ℄ to ℄	⅝″
4½″ to 6″	12″ x 8″ x ½″	9″ ℄ to ℄	¾″
6⅝″ to 8″	14″ x 10″ x ½″	11″ ℄ to ℄	¾″

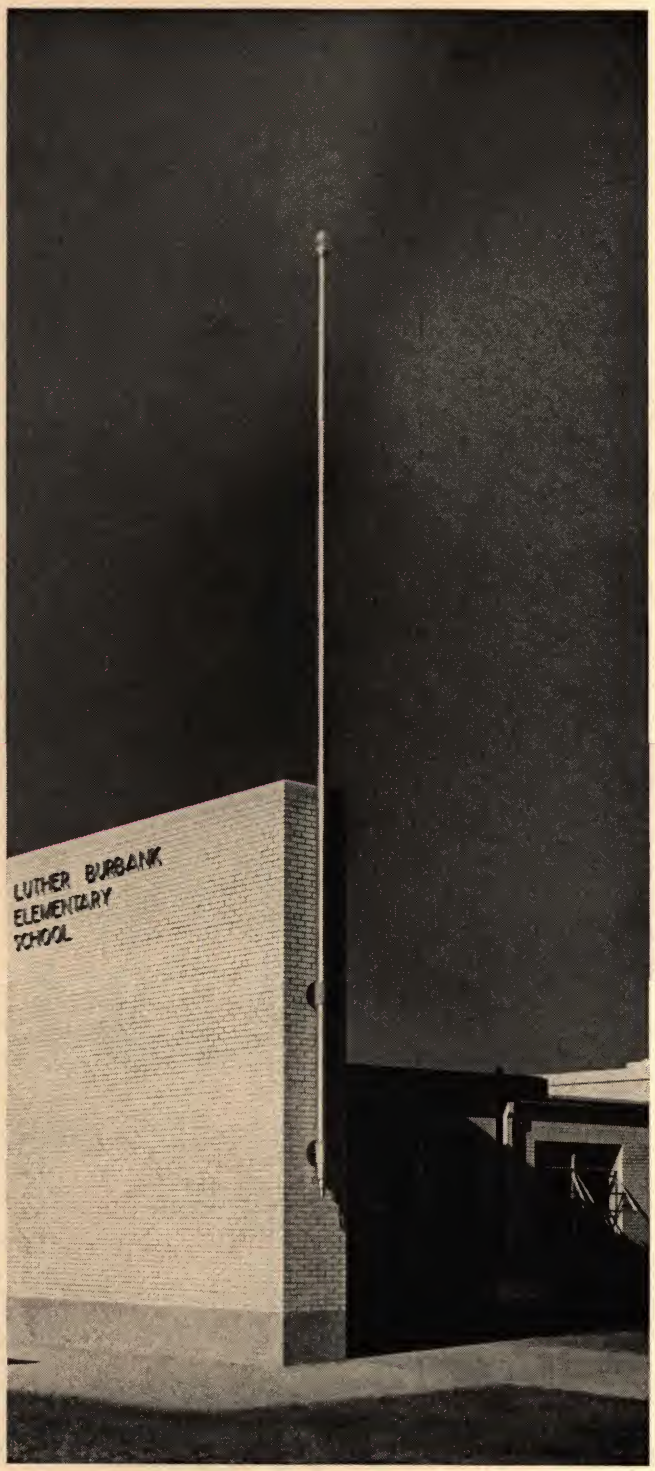
Note: Vertical distance between brackets measured from centerline of lower bracket upward to center line of upper bracket and must be at least 10% of overall pole length.



20-ft. Cone Tapered Aluminum Flagpole with W-17 Wall Brackets
Teamsters Joint Council Bldg.
Portland, Ore.
Architect: Morgan Hartford
Portland



44-ft. Cone Tapered Aluminum Flagpole
with W-19 Galv. Steel Wall Brackets
The Hecht Store
Parkington, Arlington, Va.
Architects: Kahn & Jacobs,
New York City



33 ½-ft. Cone Tapered Standard Type Aluminum Flagpole
with W-19 Galv. Steel Wall Brackets
Luther Burbank Elementary School
Tulsa, Okla.
Architect: John W. Robb
Tulsa

section 3

LINGO
OUTRIGGER
flagpoles



WITH OR WITHOUT BRACES

ALUMINUM

STEEL

STAINLESS STEEL

BRONZE

Three of Seven 27-ft. Genuine Venetian
Entasis Tapered Stainless Steel Flagpoles
U. S. Steel Main Office Building
Pittsburgh, Penna.

Architects: Harrison, Abramovitz & Cocken
New York, N. Y.

aluminum—steel—stainless steel—bronze

with or without braces

Outrigger flagpoles are made in aluminum, steel, stainless steel and bronze, all of tapered construction, standardized in various lengths, diameters, wall thicknesses, etc., as shown in the tables of dimensions below and on page 36. Twelve different standard outrigger base styles are detailed (see pages 35 and 37). These bases are full strength supporting castings, not merely hood or shell castings. All bases project the poles at a fixed angle of 45 degrees except that Base Style B-22 projects the pole at a fixed angle of 30 degrees from the vertical. Each base fits certain flagpoles only depending upon butt diameter of flagpole. Base Styles B-15, B-15A, B-16, B-16A, and B-18 are for pole butt diameters up to 3½-in. maximum. Base Styles B-20 and B-22 are for pole butt diameters up to 4-in. maximum. Base Styles B-12, B-12A, B-17, B-19 and B-23 are for pole butt diameters up to 5-in. maximum. Bases are normally arranged with concealed through bolts fastened to base from rear of wall. However, when wall construction necessitates installation of anchor bolts from front of wall, the base is attached to a supplemental standard mounting plate (of same metal as base) on outside face of wall and the four anchor bolts of mounting plate pass into the wall from the outside (see typical details in lower portion of Page 35). The ½-in. thick mounting plate is 3-in. wider and longer than the indicated base dimensions on wall. The mounting plate is square for B-15 or B-15A bases and is rectangular for all other bases.

Cone Tapered Standard Type Aluminum flagpoles are made of Alcoa 6063-T6 seamless aluminum, cold rolled, with .188-in. minimum wall thickness throughout and the tapered portion has a uniform conical taper of 1-in. in approximately each 5½ feet. The exterior pole surface is machined to an 80-grit satin brush finish then waxed. Before shipment, each pole is spirally wrapped with heavy paper, covered with burlap, wood-stripped and steel banded for protection during transit. NO PAINTING OF ALUMINUM POLES IS REQUIRED OR RECOMMENDED (See page 14). Aluminum flagpoles, unbraced or braced, have all aluminum fittings (except that halyard rope is cotton and swivel block is chrome plated bronze). Unplated bronze fittings should never be used on aluminum poles and, conversely, aluminum fittings should never be used on bronze poles because of serious galvanic corrosive action between the two metals.

Cone Tapered Light Duty steel flagpoles are made of high strength cold rolled seamless steel with wall thickness varying from .120-in. to .134-in. throughout and the tapered portion has a uniform conical taper of 1-in. in each 8½ to 10 feet. Steel poles, unbraced or braced, have all bronze fittings (except that halyard rope is cotton).

Standard Stainless Steel flagpoles are made of genuine Venetian Entasis Tapered construction and the stainless steel is Type #304, having wall thickness varying from .203-in. to .216-in. throughout depending upon pole butt diameter. The stainless steel is polished to a #4 finish. Each stainless steel pole, unbraced or braced, has Monel-S metal base (similar to stainless steel), Monel-S metal or chrome plated bronze acorn (Alternates: stainless steel or chrome plated copper ball), Monel-S or chrome plated bronze pole cap, chrome plated bronze swivel block, Monel-S or chrome plated bronze cleat, cotton halyard rope and chrome plated bronze swivel snaps. If braced, the stainless steel pole also has brace collar, couplers, escutcheon plates, etc. in Monel-S metal. The brace rods are stainless steel. Castings made of Monel-S metal (Ni 63, Cu 30, Fe 2, Si 4 and Mn .7) have the appearance of stainless steel and are stronger.



12-ft. Stainless Steel Flagpole with B-20 Monel-S Base
Illinois Bell Telephone Co.
Chicago, Ill.
***Architects*: Holabird, Root & Burgee**

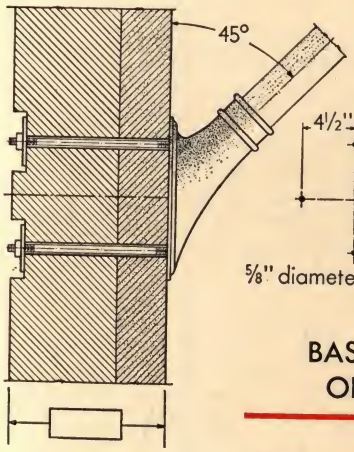
Standard Bronze flagpoles are made of genuine Venetian Entasis Tapered construction and the material is commercial bronze, having wall thickness varying from .203-in. to .216-in. throughout depending upon pole butt diameter. The pole and bronze parts are polished to a standard brush finish and then clear lacquered. Bronze poles, unbraced or braced, have all bronze fittings (except that halyard rope is cotton).

The cleat or rope fastener is normally located on the pole near the base. However, if the flag must be operated from a lower elevation and the cleat is attached to the building wall below the pole base, then a standard auxiliary halyard arrangement can be furnished to pull the main halyard rope into neat alignment with the pole.

dimensions—for flagpoles, 8 to 15 feet, without braces (for specifications, see page 38)

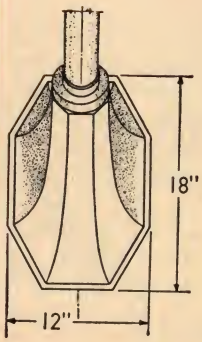
Standard Length — Feet	Pole Type and Metal	Butt Dia. — Inches	Top Dia. — Inches	Wall Thickness — Inches	Tapered Portion — Feet	Cylindrical Butt Portion — Feet	Recommended Base Styles	Type Base Metal
8	Standard Type Aluminum	3½	2⅜	.188	6	2	See Note 1	Aluminum
10	Standard Type Aluminum	3½	2⅜	.188	6	4	See Note 1	Aluminum
12	Standard Type Aluminum	3½	2⅜	.188	6	6	See Note 1	Aluminum
15	Standard Type Aluminum	4	2⅜	.188	9	6	See Note 2	Aluminum
10	Light Duty Steel	3	2	.120	8½	1½	See Note 1	Bronze
12	Light Duty Steel	3	2	.120	8½	3½	See Note 1	Bronze
10	Standard Stainless Steel	2⅞	1½	.203	6½	3½	See Note 1	Monel-S
12	Standard Stainless Steel	2⅞	1½	.203	8	4	See Note 1	Monel-S
10	Standard Bronze	2⅞	1½	.203	6½	3½	See Note 1	Bronze
12	Standard Bronze	2⅞	1½	.203	8	4	See Note 1	Bronze

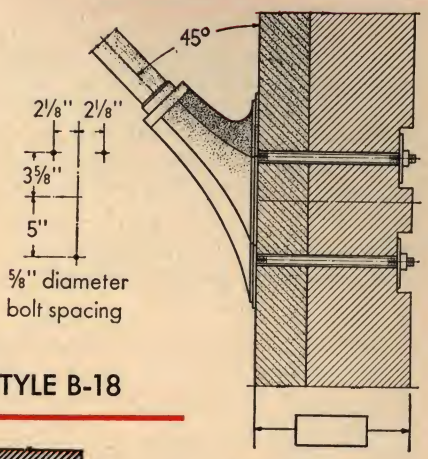
NOTE 1: Recommended Base Styles are B-15, B-15A, B-16, B-16A, B-18 or B-22 (see page 35).
NOTE 2: Recommended Base Styles are B-12, B-12A, B-17, B-19, B-23 (see page 37) or B-20 and B-22 (see page 35).



Pipe ferrule, washer plate, lockwasher, and nut furnished with each bolt

BASE STYLE B-15A (if plain) OR B-15 (if ornamented)



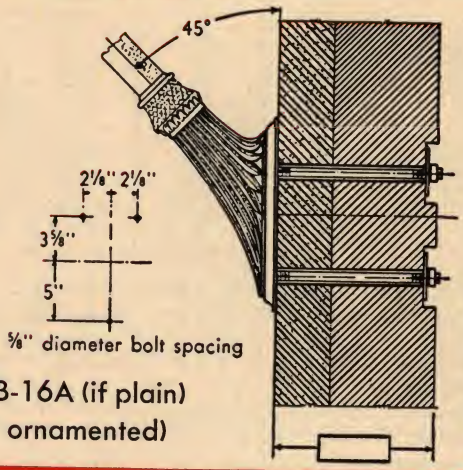


BASE STYLE B-18

Pipe ferrule, washer plate, lockwasher; and nut furnished with each bolt

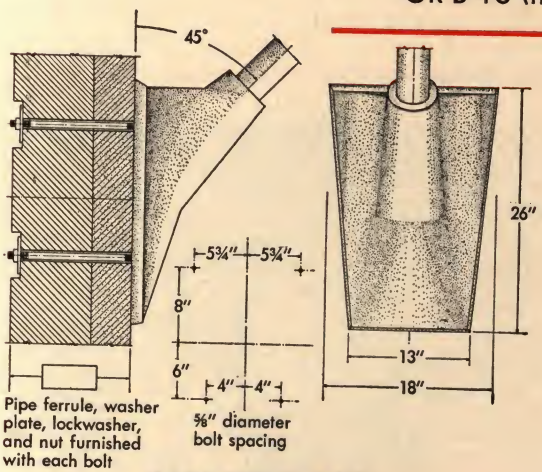
NOTE: BASE STYLES B-15, B-15A, B-16, B-16A, AND B-18 ARE FOR POLE BUTT DIAMETERS UP TO 3½-IN. MAXIMUM.





BASE STYLE B-16A (if plain) OR B-16 (if ornamented)

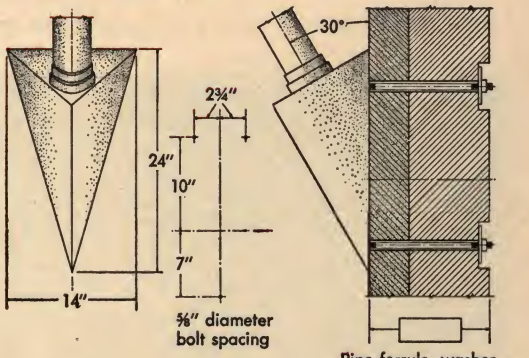
NOTE: BASE STYLES B-20 AND B-22 BELOW ARE FOR POLE BUTT DIAMETERS UP TO 4-IN. MAXIMUM



Pipe ferrule, washer plate, lockwasher, and nut furnished with each bolt

⅝" diameter bolt spacing

BASE STYLE B-20

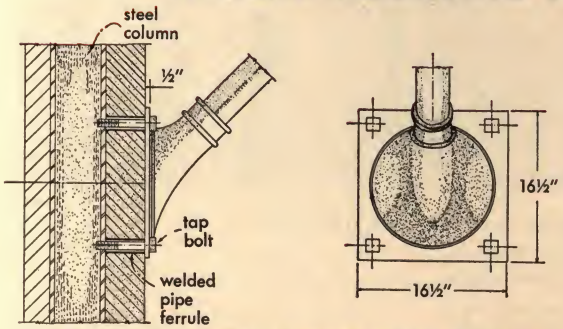


⅝" diameter bolt spacing

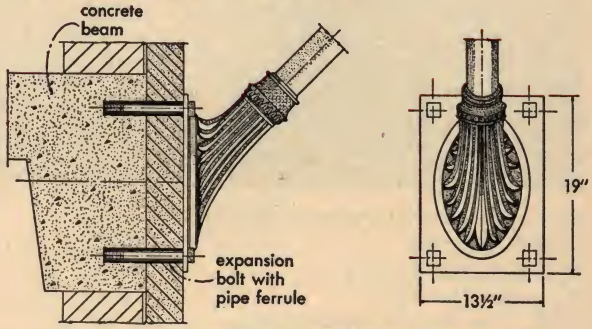
Pipe ferrule, washer plate, lockwasher, and nut furnished with each bolt

BASE STYLE B-22

TYPICAL MOUNTING PLATES FOR OUTRIGGER BASES



B-15A BASE WITH MOUNTING PLATE



B-16 BASE WITH MOUNTING PLATE

description of brace arrangements

Three different designs of bracing are available for braced outrigger flagpoles, as detailed on Page 37. All three designs are of the dual-brace type providing greater rigidity than a single support brace. For proper appearance, the bracing design recommended depends upon the particular base style selected. Notes 4, 5, and 6, under table of dimensions below, indicate our recommendations.

Braces when used on outrigger flagpoles are a functional part of the pole support and the brace anchors must be through-bolted in wall. Brace anchors of the cinch or expansion bolted types are not recommended.

Where bases of braced flagpoles cannot be anchored with through-bolts fastened to base from rear of wall, the base can be attached to a supplemental standard mounting plate (of same metal as base) on outside face of wall and the four anchor bolts of the mounting plate can be passed into wall from the outside (see text on page 34 and typical details in lower portion of Page 35).

dimensions—for flagpoles, 16 to 23 feet, with braces (for specifications, see page 38)

Standard Length — Feet	Pole Type and Metal	Butt Dia. — Inches	Top Dia. — Inches	Wall Thickness —Inches	Tapered Portion — Feet	Cylindrical Butt Portion — Feet	Recommended Base Styles	Type Base Metal
16	Standard Type Aluminum	4½	2⅞	.188	9	7	See Note 1	Aluminum
18	Standard Type Aluminum	4½	2⅞	.188	9	9	See Note 1	Aluminum
20	Standard Type Aluminum	4½	2⅞	.188	9	11	See Note 1	Aluminum
23	Standard Type Aluminum	5	3¼	.188	9⅔	13⅓	See Note 1	Aluminum
16	Light Duty Steel	4	2⅞	.134	11	5	See Note 2	Bronze
18	Light Duty Steel	4	2⅞	.134	11	7	See Note 2	Bronze
20	Light Duty Steel	4	2⅞	.134	11	9	See Note 2	Bronze
16	Standard Stainless Steel	3½	2	.216	10	6	See Note 3	Monel-S
18	Standard Stainless Steel	3½	2	.216	11½	6½	See Note 3	Monel-S
20	Standard Stainless Steel	3½	2	.216	13	7	See Note 3	Monel-S
16	Standard Bronze	3½	2	.216	10	6	See Note 3	Bronze
18	Standard Bronze	3½	2	.216	11½	6½	See Note 3	Bronze
20	Standard Bronze	3½	2	.216	13	7	See Note 3	Bronze

NOTE 1: Recommended Base Styles are B-12, B-12A, B-17, B-19 or B-23 (see page 37).

NOTE 2: Recommended Base Styles are B-12, B-12A, B-17, B-19 or B-23 (see page 37). Base Styles B-20 or B-22 may also be used if desired (see page 35).

NOTE 3: Recommended Base Styles are B-12, B-12A, B-17. B-19 or B-23 (see page 37). Base Styles B-15, B-15A, B-16, B-16A, B-18, B-20 or B-22 may also be used if desired (see page 35).

NOTE 4: Design I bracing is recommended for braced poles having Base Style B-17, B-18, B-19 or B-22.

NOTE 5: Design II bracing is recommended for braced poles having Base Styles B-12, B-15 or B-16.

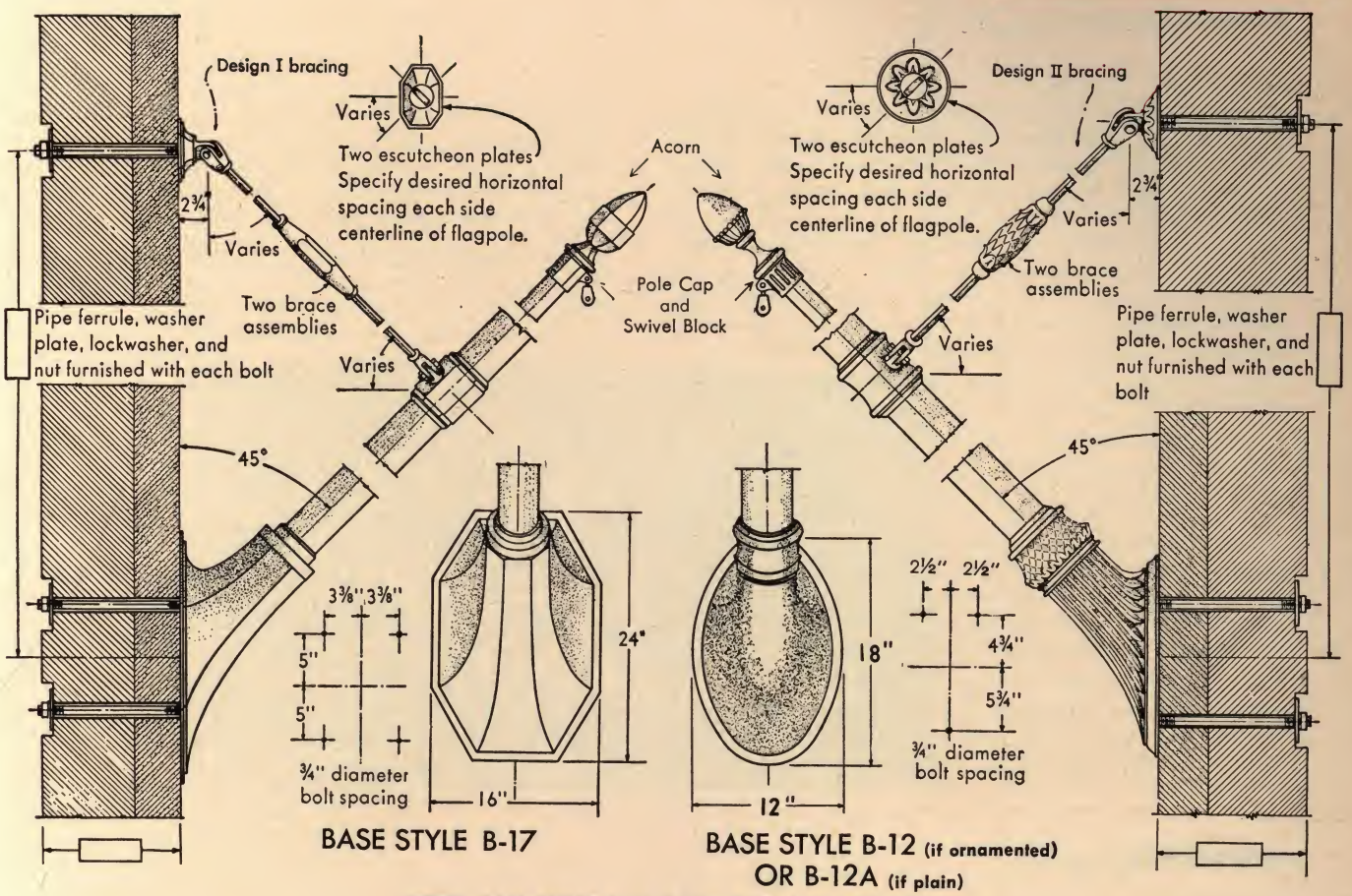
NOTE 6: Design III bracing is recommended for braced poles having Base Styles B-12A, B-15A, B-16A, B-20 or B-23.



One of two 20-ft. Aluminum Flagpoles
With B-17 Bases
Transportation Building
Brooklyn, New York
Architect: New York City Transit Aurthority



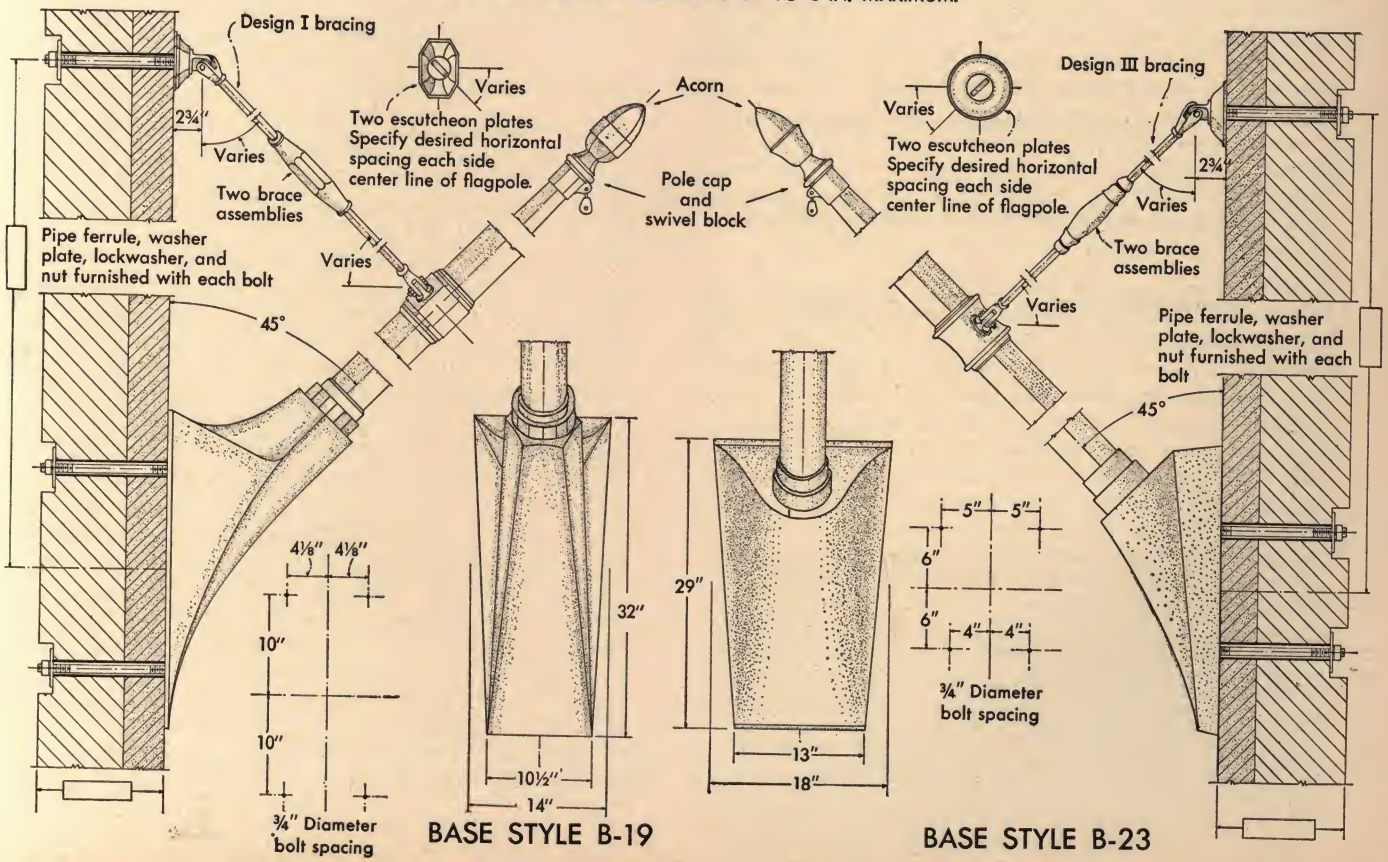
18-ft. Steel Flagpole With B-12 Base
Y. M. C. A. Building
Wichita Falls, Texas
Architect: Jesse G. Dixon
Wichita Falls



BASE STYLE B-17

BASE STYLE B-12 **(if ornamented)**
OR B-12A **(if plain)**

NOTE: BASE STYLES B-12, B-12A, B-17, B-19 AND B-23 ARE FOR POLE BUTT DIAMETERS UP TO 5-IN. MAXIMUM.



BASE STYLE B-19

BASE STYLE B-23

UNBRACED *flagpoles*

specifications

Furnish and erect a (Cone Tapered Standard Type Aluminum) (Cone Tapered Light Duty Steel) (Genuine Venetian Entasis Tapered Standard Stainless Steel) (Genuine Venetian Entasis Tapered Standard Bronze) outrigger flagpole made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, New Jersey. Flagpole shall be . . . . feet long with outside butt diameter of . . . . inches tapering through upper . . . . feet to an outside top diameter of . . . . inches with . . . . inches minimum wall thickness throughout. Pole shall have a smooth uninterrupted exterior surface throughout without visible joints or offsets.

If Pole is Aluminum Add The Following: The fittings shall consist of standard aluminum acorn top (Alternate: 5" spun aluminum ball), aluminum pole cap, chrome plated bronze swivel block, aluminum cleat, one 5/16-in. #10 cotton rope halyard, aluminum swivel snaps and one standard cast aluminum outrigger base (B-12) (B-12A) (B-15) (B-15A) (B-16) (B-16A) (B-17) (B-18) (B-19) (B-20) (B-22) (B-23) with duralumin anchor bolts, etc. Pole and all exposed aluminum parts shall have an 80-grit satin brush finish, waxed, not painted. Before shipment, pole shall be spirally wrapped with heavy paper, covered with burlap, wood-stripped and steel-banded for protection during transit.

If Pole is Steel Add The Following: All fittings shall be bronze except halyards and shall consist of standard acorn top (Alternate: 5" gold leafed copper ball), pole cap, swivel block, cleat, one 5/16-in. #10 cotton rope halyard, swivel snaps and one standard outrigger base (B-12) (B-12A) (B-15) (B-15A) (B-16) (B-16A) (B-17) (B-18) (B-19) (B-20) (B-22) (B-23) with bronze anchor bolts, etc. Pole shall be painted one exterior and interior shop coat of red lead and oil before shipment. All bronze work shall have standard brush finish, clear lacquered.

If Pole is Stainless Steel Add The Following: Fittings shall consist of one standard acorn top made of Monel-S metal (or chrome plated bronze) (Alternates: 5" spun stainless steel or chrome plated copper ball), one standard pole cap made of Monel-S metal (or chrome plated bronze), one chrome plated bronze swivel block, one cleat made of Monel-S metal (or chrome plated bronze), one 5/16-in. #10 cotton rope halyard with two chrome plated bronze swivel snaps and one standard outrigger base (B-12) (B-12A) (B-15) (B-15A) (B-16) (B-16A) (B-17) (B-18) (B-19) (B-20) (B-22) (B-23) made of Monel-S metal, with stainless steel anchor bolts, etc. All stainless steel and Monel-S material shall have #4 finish.

If Pole is Bronze Add The Following: All fittings shall be bronze except halyards and shall consist of standard acorn top (Alternate: 5" gold leafed copper ball), pole cap, swivel block, cleat, one 5/16-in. #10 cotton rope halyard, swivel snaps and one standard outrigger base (B-12) (B-12A) (B-15) (B-15A) (B-16) (B-16A) (B-17) (B-18) (B-19) (B-20) (B-22) (B-23) with bronze anchor bolts, etc. Pole and bronze parts shall have standard brush finish, clear lacquered.

BRACED *flagpoles*

specifications

Furnish and erect a (Cone Tapered Standard Type Aluminum) (Cone Tapered Light Duty Steel) (Genuine Venetian Entasis Tapered Standard Stainless Steel) (Genuine Venetian Entasis Tapered Standard Bronze) outrigger flagpole made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, New Jersey. Flagpole shall be . . . . feet long with outside butt diameter of . . . . inches tapering through upper . . . . feet to an outside top diameter of . . . . inches with . . . . inches minimum wall thickness throughout. Pole shall have a smooth uninterrupted exterior surface throughout without visible joints or offsets.

If Pole is Aluminum Add The Following: The fittings shall consist of standard aluminum acorn top (Alternate: 5" spun aluminum ball), aluminum pole cap, chrome plated bronze swivel block, aluminum cleat, one 5/16-in. #10 cotton rope halyard, aluminum swivel snaps and one standard cast aluminum outrigger base (B-12) (B-12A) (B-17) (B-19) (B-23) with duralumin anchor bolts, etc. Brace arrangement shall be Design (I) (II) (III) with duralumin rod braces, aluminum brace collar, couplers, escutcheon plates, etc. including duralumin brace anchor bolts, etc. Pole and all exposed aluminum parts shall have an 80-grit satin brush finish, waxed, not painted. Before shipment, pole shall be spirally wrapped with heavy paper, covered with burlap, wood-striped and steel-banded for protection during transit.

If Pole is Steel Add The Following: All fittings shall be bronze except halyards and shall consist of standard acorn top (Alternate: 5" gold leafed copper ball), pole cap, swivel block, cleat, one 5/16-in. #10 cotton rope halyard, swivel snaps and one standard outrigger base (B-12) (B-12A) (B-17) (B-19) (B-22) (B-23) with bronze anchor bolts, etc. Brace arrangement shall be Design (I) (II) (III) with bronze rod braces, bronze brace collar, couplers, escutcheon plates, etc. including bronze brace anchor bolts, etc. Pole shall be painted one exterior and interior shop coat of red lead and oil before shipment. All bronze work shall have standard brush finish, clear lacquered.

If Pole is Stainless Steel Add The Following: Fittings shall consist of one standard acorn top made of Monel-S metal (or chrome plated bronze) (Alternates: 5" spun stainless steel or chrome plated copper ball), one standard pole cap made of Monel-S metal (or chrome plated bronze), one chrome plated bronze swivel block, one cleat made of Monel-S metal (or chrome plated bronze), one 5/16-in. #10 cotton rope halyard with two chrome plated bronze swivel snaps and one standard outrigger base (B-12) (B-12A) (B-15) (B-15A) (B-16) (B-16A) (B-17) (B-18) (B19) (B-20) (B-22) (B-23) made of Monel-S metal, with stainless anchor bolts, etc. Brace arrangement shall be Design (I) (II) (III) with brace collar, couplers, escutcheon plates, etc. made of Monel-S metal and brace rods made of stainless steel, including stainless steel brace anchor bolts, etc. All stainless steel and Monel-S material shall have #4 finish.

If Pole is Bronze Add The Following: All fittings shall be bronze except halyards and shall consist of standard acorn top (Alternate: 5" gold leafed copper ball), pole cap, swivel block, cleat, one 5/16-in. #10 cotton rope halyard, swivel snaps and one standard outrigger base (B-12) (B-12A) (B-15) (B-15A) (B-16) (B-16A) (B-17) (B-18) (B-19) (B-20) (B-22) (B-23) with bronze anchor bolts, etc. Brace arrangement shall be Design (I) (II) (III) with bronze rod braces, bronze brace collar, couplers, escutcheon plates, etc. including bronze brace anchor bolts, etc. Pole and all bronze parts shall have standard brush finish, clear lacquered.

section 4

LINGO
ROOF SET
flagpoles



60-ft. Cone Tapered Standard Type Aluminum Flagpole atop tower of Union Oil Building, San Francisco, California
Architect: Ralph N. Kerr

CONE TAPERED STEEL

SWAGED SECTIONAL STEEL

CONE TAPERED ALUMINUM

Flagpoles for roof setting are furnished in Cone Tapered steel, Swaged Sectional steel and Cone Tapered aluminum constructions. For dimensions, typical anchorage details and specifications, please see pages 40 and 41. Steel poles up to 50 feet in overall length and aluminum poles up to 55 feet in overall length may be supported by braces or may be anchored through roof without braces; steel poles over 50 feet exposed height and aluminum poles over 55 feet exposed height should not be supported by braces but should be anchored through roof to floor construction below roof.

dimensions for swaged steel flagpoles

Exposed height, ft.	Outside Diameter, In.			Pole Weight, lbs.	Sections		
	Butt	Top	Ball		Total in pole	Shipping	
						Truck	Rail
HEAVY TYPE							
15	3½	2⅜	4	104	3	1	1
20	4	2⅞	5	170	3	1	1
25	4½	2⅞	5	255	4	1	2
30	5	2⅞	6	345	5	1	2
35	5	2⅞	6	413	5	2	2
40	5⅝	2⅞	6	535	6	2	2
45	5⅝	2⅞	8	597	6	2	2
50	6⅝	2⅞	8	782	7	2	3
60	7⅝	2⅞	8	1037	8	3	4
70	8⅝	2⅞	8	1367	9	3	3
75	9⅝	2⅞	10	1667	10	4	3
EXTRA HEAVY TYPE							
25	5	3½	5	312	4	1	2
30	5⅝	3½	6	415	5	1	2
35	6⅝	3½	8	551	6	2	2
40	7⅝	3½	8	810	7	2	2
45	7⅝	3½	8	889	7	2	2
50	8⅝	3½	8	1133	8	2	3
55	9⅝	3½	8	1448	9	2	2
60	10¾	3½	10	1793	10	3	2
65	10¾	3½	10	1921	10	3	2
70	11¾	4	10	2385	10	3	3
75	12¾	4	12	2706	11	3	3

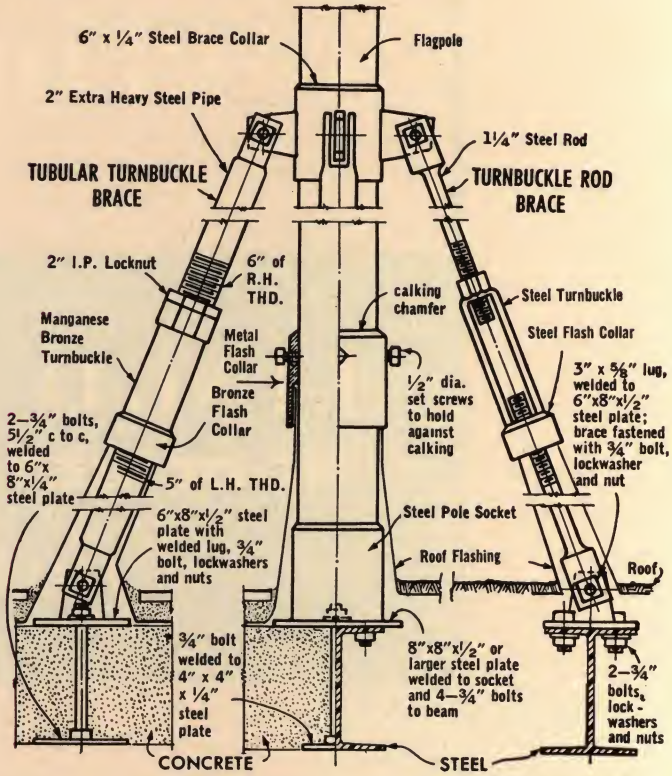
dimensions for cone tapered steel flagpoles

Exposed Height —ft.	Outside Diameter —inches			Pole Weight —lbs.	Tapered Portion —ft.	Tapered Wall —in.	Cylindrical Butt —ft.	Cylindrical Wall —in.	Weight extra butt per ft.—lbs.
	Butt	Top	Ball						
HEAVY TYPE									
25	5	3¼	5	335	12½	.250	12½	.247	12.5
30	5	3¼	6	410	12½	.250	17½	.247	12.5
35	5⅝	3¼	6	575	16½	.250	18½	.258	14.6
40	6	3¼	6	675	19½	.250	20½	.250	15.5
50	6⅝	3¼	8	930	24	.250	26	.280	19.0
60	7⅝	3¼	8	1275	31¼	.250	28¾	.301	23.5
70	8⅝	3¼	8	1900	38½	.250	31½	.322	28.6
75	9⅝	3¼	10	2150	45¼	.250	29¾	.342	33.9
80	10¾	3¼	10	2450	53½	.250	26½	.365	40.7
90	11¾	3½	10	3050	58¾	.250	31¼	.375	45.6
100	12¾	3½	10	3750	66	.250	34	.375	49.6
STANDARD TYPE									
20	5	3¼	5	265	12½	.250	7½	.247	12.5
25	5⅝	3¼	6	355	16½	.250	8½	.258	14.6
30	6	3¼	6	450	19½	.250	10½	.250	15.5
35	6⅝	3¼	6	590	24	.250	11	.280	19.0
40	7⅝	3¼	8	730	31¼	.250	8¾	.301	23.5
50	8⅝	3¼	8	1040	38½	.250	11½	.322	28.6
60	10¾	3¼	10	1575	53½	.250	6½	.365	40.7
70	11¾	3¼	10	2000	60½	.250	9½	.375	45.6
75	12¾	4	12	2390	62½	.250	12½	.375	49.6
80	14	4	12	2785	71½	.250	8½	.500	72.0
90	14	4	14	3505	71½	.250	18½	.500	72.0
100	16	4	14	4035	85¾	.250	14¼	.500	83.0
SUPERSTANDARD TYPE									
30	6⅝	3¼	6	490	24	.250	6	.280	19.0
35	7⅝	3½	8	640	29½	.250	5½	.301	23.5
40	8⅝	4	8	860	33	.250	7	.322	28.6
45	9⅝	4½	8	1090	36½	.250	8½	.342	33.9
50	10¾	5	10	1355	41	.250	9	.365	40.7
60	11¾	5½	10	1895	44½	.250	15½	.375	45.6
65	12¾	5½	12	2260	51¾	.250	13¼	.375	49.6
70	14	5½	12	2680	60¾	.250	9¼	.500	72.0
75	14	5½	14	3040	60¾	.250	14¼	.500	72.0
80	16	6	14	3350	71½	.250	8½	.500	83.0
90	18	6½	14	4100	82	.250	8	.500	94.0
100	20	6½	14	5400	96	.250	4	.500	104.0

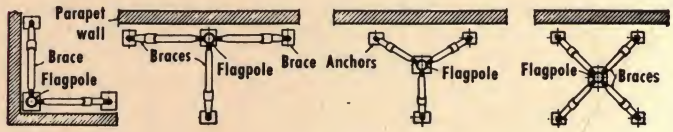
dimensions for cone tapered aluminum flagpoles

Total length, feet	Diameter, in.			Bare Pole weight, lbs.	Wall thickness, in.	Tapered portion	Cylindrical butt portion
	Butt	Top	Ball				
STANDARD TYPE							
23	5	3¼	5	80	.188	9′ 8″	13′ 4″
28	5½	3½	6	110	.188	11′ 0″	17′ 0″
33	6	3½	6	140	.188	13′ 9″	19′ 3″
38½	7	3½	6	185	.188	19′ 3″	19′ 3″
44	8	3½	8	250	.188	24′ 9″	19′ 3″
55	10	4	10	385	.188	33′ 0″	22′ 0″
65	12	5	12	625	.188x.250	38′ 6″	26′ 6″

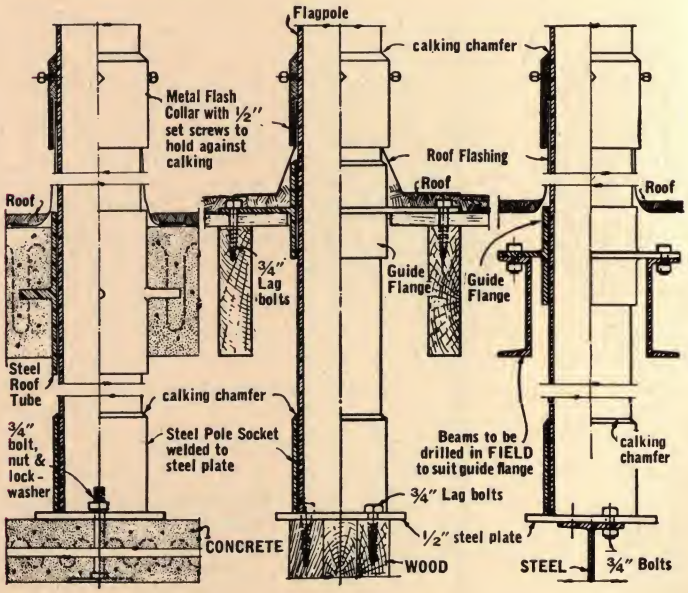
typical details of flagpoles above roofs



plan views showing typical brace arrangements



typical detail of flagpoles passing through roofs without braces



specifications for swaged sectional and cone tapered steel flagpoles (up to 50 feet) with braces

Swaged Sectional Steel Flagpole—Furnish and erect, where shown on plans, a hydraulic bell-die swaged sectional steel flagpole, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. Flagpole to be roof set (Heavy Type) (Extra Heavy Type) . . . . feet exposed height above roof. Outside butt diameter of pole shall be . . . . inches and outside top diameter of pole shall be . . . . inches. The pole shall be made in . . . . sections and shipped in . . . . pieces. **Flagpole Construction**—(Please copy similarly titled specification paragraph from page 10.) **Note:** Continue specifications for fittings, etc. in applicable paragraphs below.

Cone Tapered Steel Flagpole—Furnish and erect, where shown on plans, a cone tapered steel flagpole, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. Flagpole to be roof set (Heavy Type) (Standard Type) (Super-standard Type) . . . . feet exposed height above roof; outside butt diameter to be . . . . inches, tapered portion to be . . . . feet and outside top diameter to be . . . . inches. **Flagpole Construction**—(Please copy similarly titled specification paragraph from page 8.)

Flagpole Fittings—(Please copy specification paragraphs from page 26 for ball, truck, cleats, halyards and swivel snaps.)

Flash Collar—Provide cast bronze flash collar, place on flagpole at proper height and calk to pole, metal to metal, after roof flashing has been installed by roofing contractor.

Pole Socket With Plate—Provide a fabricated steel external pole socket, welded to steel rest plate of proper size to suit flagpole and anchored with suitable bolt arrangement.

Braces—(See note below before specifying number and type)—Provide . . . . (indicate quantity) (2″ extra heavy tubular turnbuckle) (1¼″ turnbuckle rod) braces, complete with steel brace collar and steel brace anchors. Braces shall be made of steel of lengths and number as shown on plans. Necessary drilling of (steel) (wood) beams (or placing of anchors in concrete) shall be located in accordance with detailed drawings to be submitted by Acme Flagpole Division of John E. Lingo & Son, Inc., to the Architect for approval.

Painting—(Please copy similarly titled specification paragraph from page 8.)

Note: 2″ extra heavy tubular turnbuckle braces are the best for bracing roof set poles up to 50 feet but the less costly 1¼″ turnbuckle rod braces are completely satisfactory for shorter poles under certain conditions. The use of 1¼″ rod braces is limited to the following maximum pole heights: L brace arrangement 20 feet; T arrangement 25 feet; Y arrangement 35 feet and X arrangement 40 feet. The 2″ extra heavy tubular braces may be used up to the following pole heights: L brace arrangement 25 feet; T arrangement 35 feet; Y arrangement 45 feet and X arrangement 50 feet.

specifications for cone tapered aluminum flagpoles (up to 55 feet) with braces

Flagpole—Furnish and erect, where shown on plans, a cone tapered aluminum flagpole, complete with all standard fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. Flagpole to be roof set, Standard Type, ... feet exposed height above roof; outside butt diameter to be . . . . inches, the tapered portion to be . . . . feet . . . . inches and the outside top diameter to be . . . . inches.

Flagpole Construction—(Please copy similarly titled specification paragraph from page 14.)

Flagpole Fitting—(Please copy specification paragraphs from page 14 for ball, truck, cleats, halyards and swivel snaps.)

Flash Collar—Provide a cast aluminum flash collar, place on flagpole at proper height and hold in place by means of at least four ½-in. galvanized steel set screws. Top of flash collar to have recess for waterproof calking to pole after roof flashing has been installed by roofing contractor.

Pole Socket With Plate—Provide a fabricated steel external pole socket, welded to steel rest plate of proper size to suit flagpole and anchor with suitable bolt arrangement. Entire assembly shall be hot dipped galvanized after fabrication.

Braces—(See note below before specifying number and type)—Provide . . . . (indicate quantity) (1¼″ turnbuckle rod) (2″ extra heavy tubular turnbuckle) braces, complete with steel brace collar, steel brace anchors, etc., all hot dipped galvanized. Brace collar shall have four ½-in. galvanized steel set screws for securing to pole.

Note: The 1¼-in. steel turnbuckle rod braces are completely satisfactory for any of these aluminum poles except the 55 feet pole. L type bracing may be used for either the 23 ft. or 28 ft. poles; T type bracing for the 33½ ft. poles; Y type bracing for the 38½ ft. poles and X type bracing for the 44 ft. poles. X type bracing of the 2″ extra heavy tubular turnbuckle type should be used for the 55 feet poles.

specifications for swaged sectional and cone tapered steel flagpoles (up to 100 feet) without braces

Swaged Sectional Steel Flagpole—Furnish and erect, where shown on plans, a hydraulic bell-die swaged sectional steel flagpole, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. Flagpole to be roof set (Heavy Type) (Extra Heavy Type) . . . . feet exposed height above roof plus . . . . feet to anchorage below roof. Outside butt diameter of pole shall be . . . . inches and outside top diameter of pole shall be . . . . inches. Pole shall be made in . . . . sections and shipped in . . . . pieces. (Note: Distance below roof to be at least 10% of exposed pole height above roof.) **Flagpole Construction**—(Please copy similarly titled specification paragraph from page 10.) **Note:** Continue specifications for fittings, etc. in applicable paragraphs below.

Cone Tapered Steel Flagpole—Furnish and erect, where shown on plans, a cone tapered steel flagpole, complete with all fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. Flagpole to be roof set (Heavy Type) (Standard Type) (Super-standard Type) . . . . feet exposed height above roof plus . . . . feet to anchorage below roof; outside butt diameter to be . . . . inches, tapered length to be . . . . feet and outside top diameter to be . . . . inches. **Note:** Distance below roof to be at least 10% of exposed pole height above roof.) **Flagpole Construction**—(Please copy similarly titled specification paragraph from page 8.)

Flagpole Fittings—(Please copy specification paragraphs from page 26 for ball, truck, cleats, halyards and swivel snaps.)

Flash Collar—Provide cast bronze flash collar, place on flagpole at proper height and calk to pole, metal to metal, after roof flashing has been installed by roofing contractor.

Pole Socket With Plate—Provide a fabricated steel external pole socket, welded to steel rest plate of proper size to suit flagpole and anchored with suitable bolt arrangement.

Roof Tube—(If concrete slab) **or Guide Flange** (if steel or wood roof)—Provide (roof tube) (guide flange) of proper size, fastened to roof construction and calked metal to metal before roof flashing has been installed by roofing contractor.

Painting—(Please copy similarly titled specification paragraph from page 8.)

specifications for cone tapered aluminum flagpoles (up to 65 feet) without braces

Flagpole—Furnish and erect, where shown on plans, a cone tapered aluminum flagpole, complete with all standard fittings, as listed below, made by Acme Flagpole Division of John E. Lingo & Son, Inc., Camden, N. J. Flagpole to be roof set, Standard Type, ... feet exposed height above roof plus . . . . feet to anchorage below roof; outside butt diameter to be . . . . inches, the tapered portion . . . . feet . . . . inches and the outside top diameter . . . . inches. **Note:** Distance below roof should be at least 10% of exposed pole height above roof.

Flagpole Construction—(Please copy similarly titled specification paragraph from page 14.)

Flagpole Fittings—(Please copy specification paragraphs from page 14 for ball, truck, cleats, halyards and swivel snaps.)

Flash Collar—Provide a cast aluminum flash collar, place on flagpole at proper height and hold in place by means of at least four ½-in. galvanized steel set screws. Top of flash collar to have recess for waterproof calking to pole after roof flashing has been installed by roofing contractor.

Pole Socket With Plate—Provide a fabricated steel external pole socket, welded to steel rest plate of proper size to suit flagpole and anchor with suitable bolt arrangement. Entire assembly shall be hot dipped galvanized after fabrication.

Roof Tube (if concrete roof) **or Guide Flange** (if steel or wood roof)—Provide a galvanized fabricated steel (roof tube) (guide flange) of proper size, securely fastened to roof construction.

recommended flag sizes

The tables of dimensions below show the most appropriate standard flag sizes, from the standpoint of appearance, for various flagpoles. The indicated flags can be used in moderate wind and under good weather conditions. However, the flag will be subject to less damage and provide longer service if it is not flown in high wind or in inclement weather. If it is necessary to fly a flag each day, regardless of weather conditions, then we recommend the initial purchase of a second flag, having much smaller standard dimensions, to be used on the flagpole whenever high wind or bad weather conditions prevail.

flags for ground set poles

Exposed Pole Height	Flag Size
15′	3′ x 5′
20′ or 25′	4′ x 6′
30′ or 35′	5′ x 8′
40′	6′ x 9′
45′	6′ x 10′
50′, 55′ or 60′	8′ x 12′
65′ or 70′	9′ x 15′
80′ or 90′	10′ x 15′
100′	12′ x 18′

flags for roof set poles

Exposed Pole Length	Flag Size
15′	4′ x 6′
20′ to 30′	5′ x 8′
35′	6′ x 9′
40′	6′ x 10′
45′ to 50′	8′ x 12′
60′ to 65′	9′ x 15′
70′ to 75′	10′ x 15′

flags for vertical wall set poles

Exposed Pole Height above top of wall	Flag Size
12′ to 15′	4′ x 6′
16′ to 30′	5′ x 8′
35′	6′ x 9′
40′	6′ x 10′

flags for outrigger poles

Pole Length	Flag Size
8′	3′ x 5′
10′ to 12′	4′ x 6′
15′ to 16′	5′ x 8′
18′ to 23′	6′ x 10′

flagpole erection

Flagpoles are usually erected by using a truck crane with boom. Erection can also be accomplished by use of a gin pole with necessary rigging if suitable truck crane cannot be procured. The pole erection should be entrusted to experienced men preferably those engaged in the steel erection, rigging, heavy machinery moving or steeplejack trades.

Complete printed erection instructions, with diagrams, are supplied with each pole showing how the pole can be erected by either the crane or gin pole method. For swaged sectional flagpoles shipped in more than one piece, full directions are given as to field assembly, method of calking field joints and field alignment of sections, without the necessity of field welding. For tapered steel flagpoles shipped in more than one piece, complete instructions are indicated for field assembly, circumferential welding and grinding at field joint, etc. For tapered aluminum flagpoles shipped in more than one piece, similar directions are given for field assembly, without the necessity of field welding.

For ground set flagpoles having standard foundations, standard foundation drawings are also furnished showing recommended foundation dimensions and complete instructions for excavating, pouring of footing, setting of foundation tube, pouring of main foundation, wedging and aligning of pole in foundation tube, dry-sand packing between pole and foundation tube, waterproof calking at top of foundation, installing grout cap, etc. For ground set poles having special foundations, especially prepared shop drawings previously approved by the Architect are furnished giving all pertinent dimensions and details for guidance of the foundation contractor and pole erectors. For all outrigger, wall set or roof poles, similar special shop drawings are furnished showing layout of anchorages, etc. for field use of pole erectors.

flagpole maintenance

Maintenance of flagpoles consists principally of halyard rope replacement and preservation of pole surface.

The cost of halyard rope replacement can be greatly minimized if the halyard rope in the pole is replaced whenever showing sign of wear and before becoming broken. Replacement of unbroken rope can easily be made without the necessity of climbing the flagpole. Merely butt the end of the new rope to the end of the old rope, thread a fine wire or strand of jute twine through ropes at points approximately 1-in. from rope ends and continue the thread by tight circumferential wrapping between the 2-in. space, then cover the wrapped portion with a single layer of friction or adhesive tape. Extreme care should be exercised in hoisting the joined rope up the pole, over the sheave and down to the starting position.

Both manila and cotton rope as supplied with our flagpoles give excellent service but cotton rope having a bronze center can also be supplied, being stronger, more serviceable and difficult to cut. A locked cleat cover insures against tampering of the fastened rope at the cleat but does not prevent vandals or petty thieves from cutting the rope where it emerges from top of cleat cover. The use of sash chain or wire rope should be avoided because such metal halyard rope is destructive to the painted surface of a steel pole and defaces the fine finish of an aluminum, bronze or stainless steel pole. The halyard rope, regardless of type, should never be used as a means of hoisting a person aloft. Only a qualified workman with proper equipment should be allowed to climb a flagpole.

Our aluminum flagpoles have an 80-grit satin brush finish, waxed. This allows the surface of the pole to acquire a uniform aluminum oxide film with a silver-gray mat finish most desirable for architectural effect and requiring no maintenance. Similarly, our bronze flagpoles have a standard brush finish, clear lacquered. This finish develops a natural patina of fine color having a distinct artistic value and requiring no maintenance. Our stainless steel flagpoles have a #4 standard polish finish, generally preferred for soft lustrous beauty. Usually the stainless steel surface requires no maintenance but in localities heavy laden with industrial smoke, etc. the finish may eventually become dull from soot or oil sludge deposits. This film can easily be removed and the surface restored to the original factory finish by wiping the surface with a cloth saturated with water and some other ordinary detergent.

Steel flagpoles require periodic painting maintenance for clean appearance and as a protection to the metal. The interval between repainting depends greatly upon the atmospheric conditions at the pole location. In relatively clean atmosphere the necessary painting is infrequent but in industrial areas annual repainting may be required. Repainting of steel poles should be done whenever the painted pole surface becomes dingy or rust spots are in evidence. Any rust spots should be wired-brushed to bare metal and then coated with red lead paint. When the red lead is dry, apply a coat of flat white lead paint to the spots, followed by a coat of finish white lead paint to the entire visible pole. The normal painting cycle is frequently shortened if the flag snaps in the halyard ropes are allowed to beat against the pole surface when the flag is not in use. Except when the flag is flying, the flag snaps of any flagpole should be lowered to the cleat location. Constant whipping of the halyard rope against the pole surface will eventually mar the finish and produces a monotonous noise. This condition can be eliminated by wrapping the halyard rope in a few long spiral turns around the pole when the flag is not on the pole. For seacoast locations the rust resistance value of the steel can be greatly increased if the steel pole is hot-dip galvanized at the factory before delivery and installation. The galvanizing is not essential at localities where salt atmosphere does not prevail.



RCA Superturnstile TV Transmitting Antenna
(Antenna and Pole Manufactured by Lingo)
Empire State Building, New York City

Ajax Antenna Division is the radio products department of John E. Lingo & Son, Inc., specializing in the design and manufacture of steel tubular antenna supporting poles for various types of transmitting antennas. The Company has also manufactured guyed tubular steel vertical radiators up to nearly 600 feet high for AM broadcast service. The highest tubular steel vertical radiator in the world is the 576 feet Lingo radiator at the Government Radio Station, Lisbon, Portugal.

Lingo has been identified with radio since 1923 and has pioneered in the development of supporting poles and antennas for many types of radio service. We also serve leading American radio transmitter manufacturers by constructing to specifications TV transmitting antennas, communication antennas and supporting poles for same.

During World War II we designed and manufactured thousands of guyed heavy steel tubular portable antenna supporting poles for the U.S. Signal Corps and Air Force. These poles gave outstanding service in every clime and on all fronts from the Aleutians to New Guinea and from Greenland to North Africa. Many 350 feet high guyed masts were also furnished.

Many of the television transmitting antennas and poles at TV stations throughout the world have been manufactured by Lingo. The photograph shows the WRCA television antenna and pole (both made by Lingo) atop a structural steel tower on the Empire State Building, New York City.

Lingo radio products also include a standard line of trim, unguyed, self supporting tubular steel poles for ground setting up to 100 feet high, especially designed to accommodate TV receiving antennas or medium weight communication antennas. These sectional steel poles are equipped with steps to provide easy accessibility to the antenna and transmission line whenever repairs are necessary. We also manufacture free-standing tubular steel poles for supporting rotary beam communication antennas in amateur radio service. These poles can also be equipped with a special anchorage device which allows the entire pole to be readily rotated thus eliminating the necessity of a rotary mechanism at top.

In planning a building where a TV transmitting or communication antenna installation is contemplated on the roof, present your pole problem to us. Our engineering staff is prepared to serve you by designing the proper supporting pole to accommodate the loads imposed by the particular antenna to be installed and to meet local building code requirements as to wind and ice loads, allowable working stress on steel, etc.

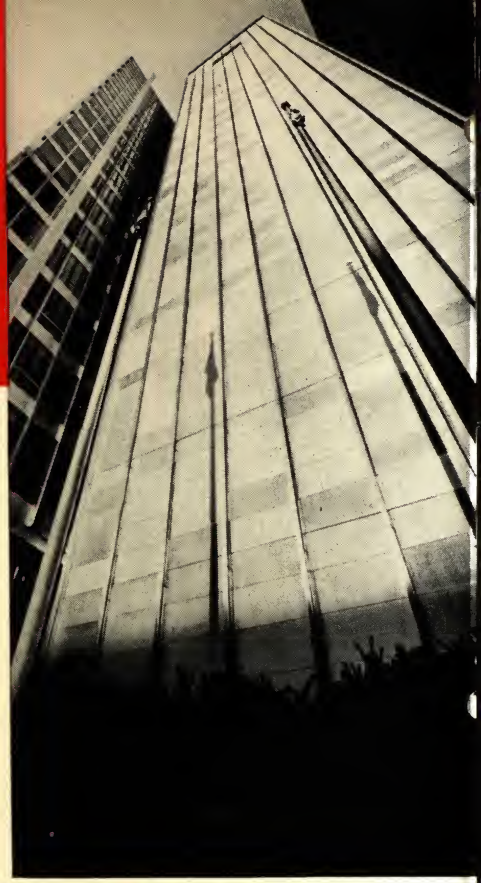
WORLD WIDE INSTALLATIONS OF

LINGO *flagpoles*

American Battle Monuments, throughout World
The Shamrock, Houston, Texas
Arlington National Cemetery, Arlington, Va.
Home of Thomas Jefferson, Monticello, Va.
Eisenhower Museum, Abilene, Kans.
Eisenhower Dam, Massena, N. Y.
Truman Library, Independence, Mo.
Alfred E. Smith Memorial, New York, N. Y.
U. S. Steel Main Office Building, Pittsburgh, Pa.
Tennessee Valley Authority—Various Dams
Falcon Dam, Texas-Mexico
St. Lawrence Seaway, Massena, N. Y.
University of Alaska, Fairbanks, Alaska
Miami Stadium, Miami, Fla.
Delaware Memorial Bridge, Wilmington, Del.
Glass Center, Corning, N. Y.
Queen Elizabeth Power Station, Saskatoon, Sask.
Lions International Building, Chicago, Ill.
Miller Brewing Company Building, Milwaukee, Wisc.
House of Seagrams, New York, N. Y.
Alcoa Main Office Building, Pittsburgh, Pa.
Atomic Research Laboratory, Oak Ridge, Tenn.
American Airlines General Office Building, Tulsa, Okla.
Union Carbide Building, New York, N. Y.
Carnegie Institute, Pittsburgh, Pa.
Dept. of Finance Building, Manila, P. I.
Monticello Raceway, Monticello, N. Y.
Ak-Sar-Ben Colesium, Omaha, Nebr.
Washington Post Building, Washington, D. C.
State Capitol, Richmond, Va.
Public Safety Building, Seattle, Wash.
Baseball Hall of Fame, Cooperstown, N. Y.
Agricultural Hall of Fame, Kansas City, Kans.
Farm Bureau Insurance Building, Columbus, Ohio
Pan-American Union, Washington, D. C.
Lewisohn Stadium, New York, N. Y.
Pentagon Building, Arlington, Va.
May Co. Department Stores, California
Various Public Schools in New York, N. Y. and Philadelphia, Pa.
Alcoa, Bell Telephone, Bethlehem Steel, Chrysler, Coca-Cola, Du Pont, Ford, G.E., General Motors, IBM, Kodak, National Biscuit, RCA, Sears, Statler and U.S. Steel Buildings in Various Cities
U.S. Missile Proving Grounds, White Sands, N. Mex.
U.S. Weather, Aircraft Warning and Nike Stations at Various Locations
U.S. Army, Navy, Marine Corps and National Guard Training Centers in Various Cities
U. S. Government Buildings, Washington, D. C.—White House, Apex, Archives, Capitol, Commerce, Congressional Library Annex, Federal Reserve, Internal Revenue, Justice, Labor, State (old and new), etc.

thousands of other installations including:

Airports	Colleges	Hotels	Parking Lots	Shopping Centers
American Legions	Commercial Bldgs.	Housing Projects	Parks	Stadiums
Apartment Houses	County Buildings	Industrial Plants	Playgrounds	State Buildings
Armories	Department Stores	Jails	Police Stations	Swimming Pools
Auditoriums	Detention Homes	Libraries	Post Offices	Trade Union Bldgs.
Banks	Embassies	Marinas	Public Buildings	Universities
Bridges	Fairgrounds	Medical Centers	Race Tracks	Veterans Hospitals
Bus Terminals	Fire Stations	Memorials	Railroad Terminals	VFW Buildings
Camps	Fraternal Buildings	Military Centers	Residences	War Memorials
Cemeteries	Garages	Monuments	Restaurants	Warehouses
Churches	Golf Courses	Municipal Bldgs.	Service Stations	Yacht Clubs
Coast Guard Stations	Gymnasiums	Office Buildings	Schools	Youth Centers



"A Study In Perspective"
Showing Two 50-ft. Standard Type
Cone Tapered Steel Flagpoles
Inland Steel Company Office Building
Chicago, Illinois
Architects: Skidmore, Owings and Merrill

Three 30-ft. Cone Tapered Standard
Type Aluminum Flagpoles
Republic National Bank,
Dallas, Texas
Architects: Harrison & Abramovitz; Gill & Harrell



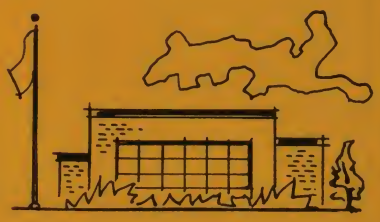
Acme Flagpole Division

JOHN E. LINGO & SON • INC.

28th STREET AND BUREN AVE. • CAMDEN 5, NEW JERSEY

TELEPHONE. WOodlawn 4-0487

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Ba







FLAGPOLES

BAARTOL COMPANY, INC.

KENTON, OHIO • PHONE: Kenton 4032



Every Baartol flagpole will enhance its surroundings and its dignified lines make it worthy to fly the symbol of American Freedom, its flag.

appearance

Baartol flagpoles are well designed, and exceptionally beautiful in appearance. Exacting requirements in the fabrication of metal flagpoles are met by expert craftsmen in our modern equipped shop.

safety

Flagpoles often extend to one hundred feet in the air and must be properly designed and fabricated for safety and welfare of the public. Baartol accordingly uses steel, or aluminum rather than wood, which deteriorates with the weather.

durability

Baartol metal flagpoles are scientifically designed to withstand the severest strains of wind and weather. They are lightning proof, air tight, water proof, rust resisting, insect proof, and meet rigid government specifications. All fittings are of the finest quality.

cone tapered aluminum for ground and roof setting

23 feet to 65 feet, see table, these poles withstand a simulated loading of a 100 mph wind with no evidence of permanent set and are highly recommended for maintenance free installation. The tapered portion is cold rolled to a uniform conical taper of 1″ per 5′-6″.

specifications

Flagpole shall be of Alcoa 6063-T6 aluminum, seamless extruded tubing, cone tapered complete with all fittings listed below, all as manufactured by Baartol Company, Inc., Kenton, Ohio. Flagpole shall be ____ ft. high (exposed) with ____ ft. below ground. The tapered portion shall be ____ ft. long; butt diameter ____ in., top diameter ____ in. (If total length of flagpole is over 38′-6″, add the following*.) Flagpole may be shipped in ____ sections provided with precision made, close fitting, self aligning internal splicing sleeve so that no field welding or grinding is required.

Fittings: (Architect should include descriptions of halyards and aluminum truck, ball and cleats. See page 8.)

Installation: Flagpole shall be installed where shown on plans and as detailed. (See page 6 and 7.)

Finishing: Portion of pole to be placed below ground shall be given a heavy shop coat of asphaltum paint inside and outside. Exterior surface of exposed portion of pole shall have a satin brush finish and then be heavily waxed. Flagpole shall be protected during transit with a spiral wrapping of heavy paper, covered with burlap, wood stripping and steel banding.

cone tapered steel for ground and roof setting

28 feet to 110 feet (see table) each size scientifically designed to withstand the severest strain of wind and weather. This flagpole has a machine made, straight, uniform conical tapered portion, 1″ per 7.14′, without visible joints or offsets; and a seamless cylindrical butt section.

specifications

Flagpole shall be cone tapered steel, (economy, standard, or extra heavy) type, complete with all fittings listed below, all as manufactured by Baartol Company, Inc., Kenton, Ohio. Flagpole shall be ____ ft. high (exposed) with ____ ft. below ground. The tapered portion shall be ____ ft. long; butt diameter ____ in., top diameter ____ in. (If flagpole is over 38′-6″ over all, add the following*). Flagpole may be shipped in ____ sections provided with close fitting, self-aligning internal splicing sleeve. Field joints shall be welded and ground smooth.

Fittings: (Architect should include descriptions of truck, halyards, cleats, and ball. See page 8.)

Installation: Flagpole shall be installed where shown on plans and as detailed. (See page 6 and 7.)

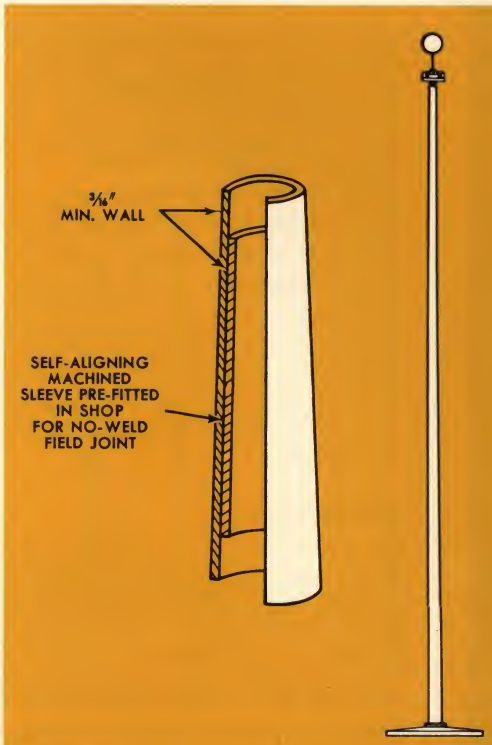
Painting: A shop coat of red lead and oil paint shall be applied to all steel which will be exposed in the completed installation. When flagpole arrives at the site it shall be given one coat of approved marine paint before erection and one coat after. Color to be selected. (Architect or owner).

*All flagpoles over 38′-6″ long overall should be shipped in 2 or 3 sections depending upon length of pole (see table) in order to avoid excessive tariff rates. However, flagpoles up to 65 feet overall length can be shipped via railroads in one piece.

dimensions — cone tapered aluminum for ground and roof setting

height above grade in feet	overall length feet	diameter in inches		wall thickness inches	length		diameter of ball inches	no. of shipping sections	weight lbs.
		butt O.D.	top O.D.		tapered	cylindrical			
20	23	5	3¼	.188	9′-8″	13′-4″	5	1	130
25	28	5½	3½	.188	11′-0″	17′-0″	6	1	180
30	33	6	3½	.188	13′-9″	19′-3″	6	1	200
35	38′-6″	7	3½	.188	19′-3″	19′-3″	6	2	280
40	44	8	3½	.188	24′-9″	19′-3″	8	2	360
50	55	10	4	.188	33′-0″	22′-0″	10	2	500
59	65	12	5	.250	38′-6″	26′-6″	12	2	850

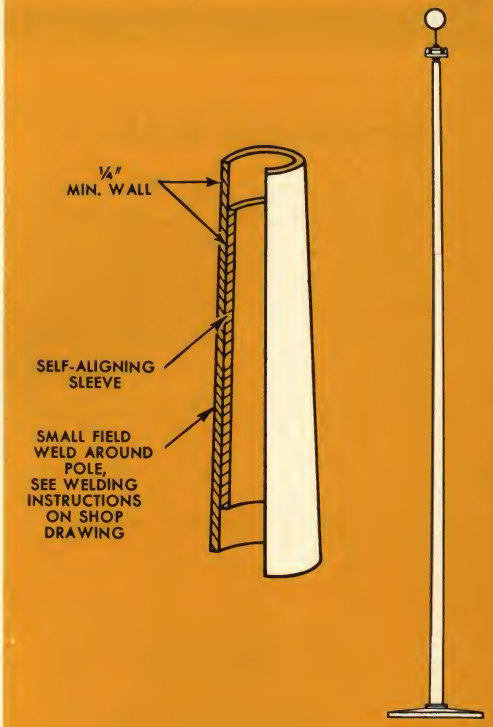
Note:
Fittings for Cone Taper Aluminum Flagpole consists of No. 14 gauge spun aluminum ball, all aluminum body and spindle, non-fouling, stainless steel ball bearings, revolving truck with double aluminum sheaves, two 5/16″ diameter No. 10 cotton braided rope halyards, each with two aluminum swivel snaps for securing to flag, and two 9″ cast aluminum cleats each attached to pole with 3/8″ flat head aluminum machine screws.



dimensions — cone tapered steel for ground and roof setting

height above grade in feet	diameter in inches		tapered portion		straight portion		additional length for ground setting feet	ball diameter inches	no. of shipping sections	weight lbs.	
	butt O.D.	tap O.D.	length feet	wall thickness inches	length feet	wall thickness inches				ground setting pole and ground protector	roof setting pole
economy type											
25	5	3¼	12½	.250	12½	.247	3½	5	1	400	335
30	5	3¼	12½	.250	17½	.247	3½	6	1	465	410
35	5 5/16	3¼	16½	.250	18½	.258	4	6	1	615	575
40	6	3¼	19½	.250	20½	.250	4	6	2	730	675
50	6⅜	3¼	24	.250	26	.280	5	8	2	1040	930
59	7⅜	3¼	31¼	.250	27¾	.301	6	8	2	1410	1250
70	8⅜	3¼	38½	.250	31½	.322	7	8	3	2125	1900
75	9⅜	3¼	45¼	.250	29¾	.342	7½	10	3	2460	2150
80	10¾	3½	53½	.250	26½	.365	8	10	3	2850	2450
90	11¾	3½	58¾	.250	31¼	.375	9	10	3	3550	3050
100	12¾	3½	66	.250	34	.375	10	10	3	4300	3750
standard type											
20	5	3¼	12½	.250	7½	.247	3	5	1	325	265
25	5 5/16	3¼	16½	.250	8½	.258	3½	6	1	430	355
30	6	3¼	19½	.250	10½	.200	3½	6	1	535	450
35	6⅜	3¼	24	.250	11	.280	4	6	1	700	590
40	7⅜	3¼	31¼	.250	8¾	.301	4	8	2	870	730
50	8⅜	3¼	38½	.250	11½	.322	5	8	2	1235	1040
59	10¾	3¼	53½	.250	5½	.365	6	10	2	1550	1235
70	11¾	3¼	60½	.250	9½	.375	7	10	2	2400	2000
75	12¾	4	62½	.250	12½	.375	7½	12	3	2850	2390
80	14	4	71½	.250	8½	.500	8	12	3	3475	2785
90	15	4	78¼	.250	11¾	.500	9	14	3	4225	3400
100	16	4	85¾	.250	14¼	.500	10	14	3	5000	4035
extra heavy type											
30	6⅜	3¼	24	.250	6	.280	3½	6	1	590	490
35	7⅜	3½	29½	.250	5½	.301	4	8	1	775	640
40	8⅜	4	33¼	.250	6¾	.322	4	8	1	1025	860
45	9⅜	4½	36½	.250	8½	.342	4½	8	2	1300	1090
50	10¾	5	40¾	.250	9¼	.365	5	10	2	1625	1355
59	11¾	5½	44½	.250	14½	.375	6	10	2	2200	1850
65	12¾	5½	51¾	.250	13¼	.375	6½	12	2	2665	2260
70	14	5½	61	.250	9	.500	7	12	2	3300	2680
75	15	5½	67½	.250	7½	.500	7½	14	3	3625	2920
80	16	6	71½	.250	8½	.500	8	14	3	4150	3350
90	18	6½	82	.250	8	.500	9	14	3	5100	4100
100	20	6½	96	.250	4	.500	10	14	3	6600	5400

*For ground setting, straight portion has additional length for foundation setting see detail page 6 and 7. For roof setting when pole is anchored through roof, additional length can be added as required.



swaged sectional steel — for ground and roof setting

Swaged sectional steel flagpoles 20 feet to 125 feet, see table. These poles are manufactured by joining consecutive diminishing diameters of new seamless steel pipe with shop joint welded with a neat bevel to make them absolutely water tight, see detail.

Field joints are similar except that the joint is beveled for caulking steel to steel which eliminates field welding. The swaged sectional pole, with telescope-like appearance, is least expensive of all and has all of the quality construction features of other Baartol Flagpoles. Each size is designed to withstand wind stresses of 100 mph.

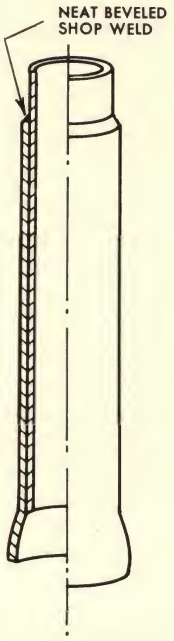
Swaged sectional poles are usually shipped in sections less than 22 feet long so that they can be shipped at lowest cost with door to door delivery via either motor freight or railroad.

specifications

Flagpole shall be steel, swaged sectional (light, heavy or extra heavy) type, complete with all fittings listed below, all as manufactured by Baartol Company, Inc., Kenton, Ohio. Flagpole shall be ____ ft. high (exposed) with ____ ft. below ground, butt diameter ____ in., top diameter ____ in. Shop joints shall be welded with a neat bevel. Flagpole may be shipped in ____ sections provided with machine beveled joints for field caulking steel to steel assuring watertight joints.

Fittings: (Architect should include descriptions of truck, halyards, cleats, and ball. See page 8.)

shop joint



Installation: Flagpole shall be installed where shown on plans and as detailed. (See page 6 and 7.)

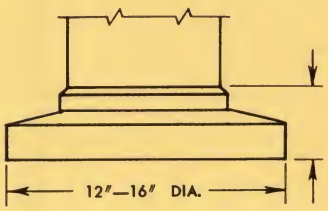
Painting: A shop coat of redlead and oil paint shall be applied to all steel which will be exposed in the completed installation.

When flagpole arrives at the site it shall be given one coat of approved marine paint before erection and one coat after. Color to be selected. (Architect or owner.)

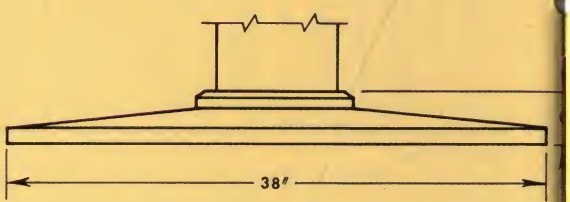
ornamental bases

Shown here are some of the most popular types of Baartol bases and flash collars for ground set flagpoles. They can be furnished in cast iron (galvanized or painted), cast aluminum (with a satin finish) or cast bronze (with a brush finish). Our pattern shop is equipped to work with the architect on custom designs.

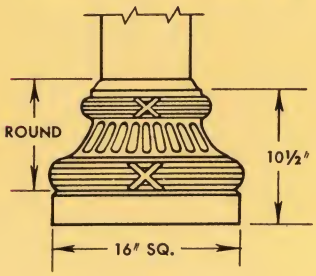
STYLE FC-1 5″ to 8⅝″



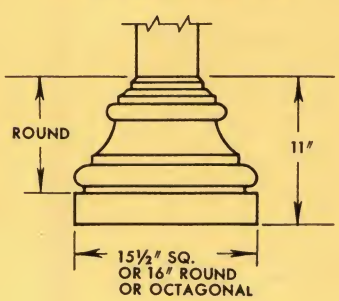
STYLE FC-2 6″ to 9⅝″



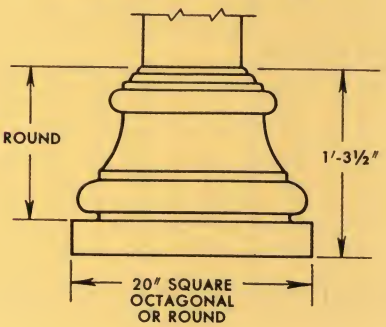
STYLE BH 5½″ to 7⅝″



STYLE BB 5″ to 6⅝″



STYLE BB-1 7″ to 8⅝″



dimensions

flagpoles

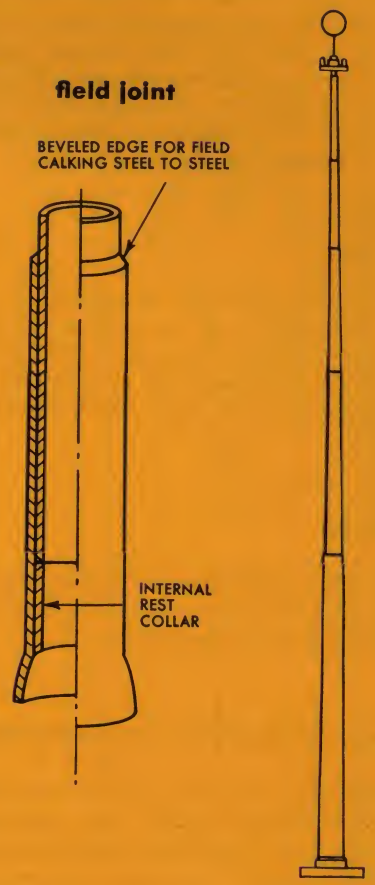
steel
aluminum

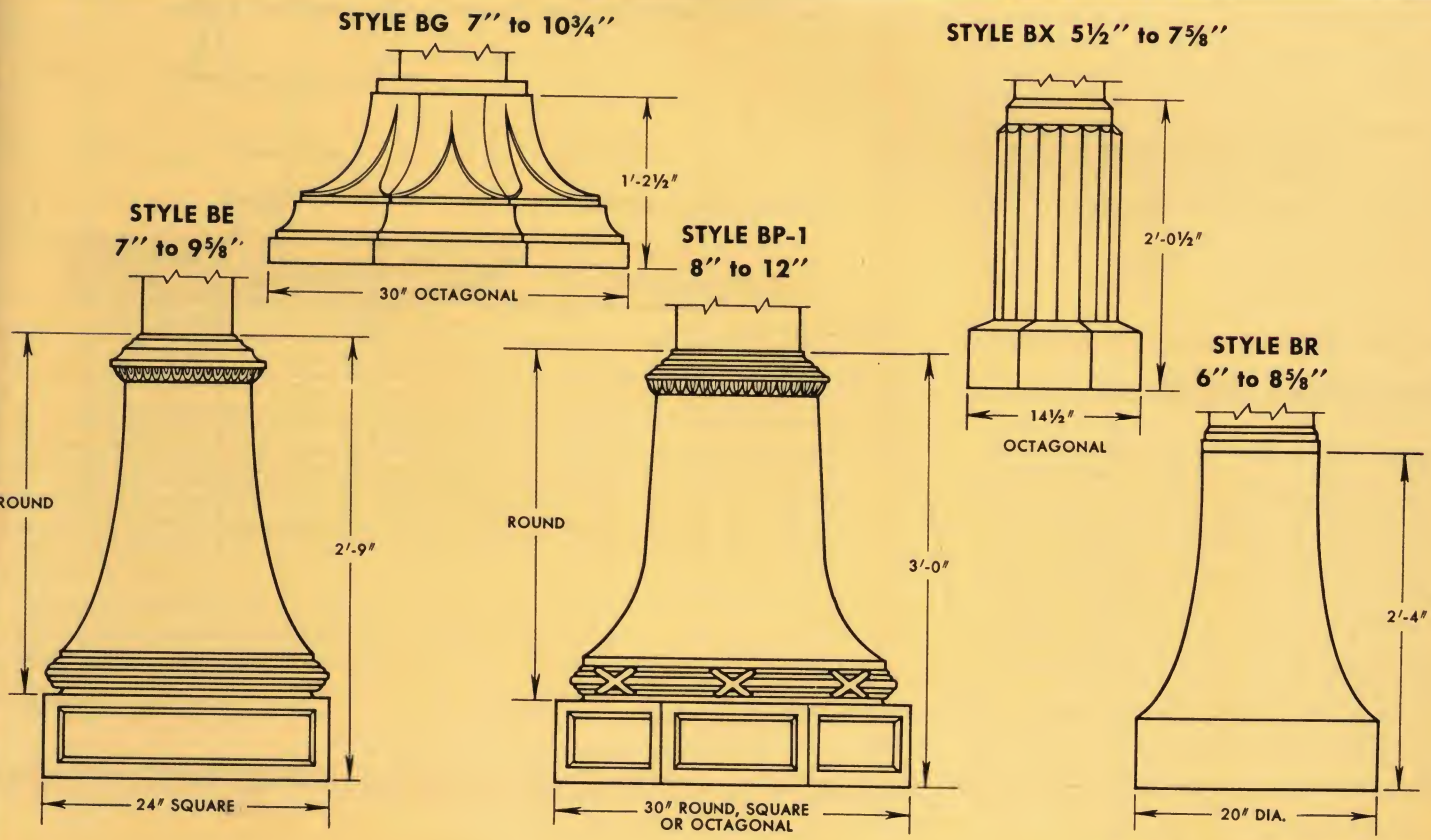
*height above grade in feet	diameter in inches		additional + length for ground setting	ball diameter inches	no. of pole sections	no. of shipping sections	weight lbs.		
	butt O.D.	tap O.D.					ground setting	roof setting	
							pole and ground protector	pole	additional per foot
light type									
17	3½	2⅜	3	5	3	1	150	127	7.6
25	4	2⅜	3½	5	4	2	256	224	9.2
33	4½	2⅜	4	6	5	2	365	322	10.8
41	5	2⅜	4½	6	6	3	500	444	12.5
49½	5⁹⁄₁₆	2⅜	4½	6	7	3	660	594	14.6
57½	6⅜	2⅜	5	6	8	4	870	775	19.0
65½	7⅜	2⅜	6	8	9	4	1130	989	23.5
73	7⅜	2⅜	6	8	9	5	1310	1169	23.5
80	8⅜	2⅜	7	8	10	3	1630	1430	28.6
90	9⅜	2⅜	8	10	11	3	2180	1910	33.9
100	10¾	2⅜	8	10	12	3	2735	2410	40.7
heavy type									
20	4	2⅞	3	5	3	2	225	178	9.2
25	4½	2⅞	3½	5	4	2	315	257	10.8
30	5	2⅞	3½	6	5	2	415	347	12.5
40	5⁹⁄₁₆	2⅞	4	6	6	3	615	526	14.6
50	6⅜	2⅞	5	8	7	3	860	725	19.0
60	7⅜	2⅞	6	8	8	4	1230	1045	23.5
70	8⅜	2⅞	7	8	9	3	1620	1368	28.6
75	9⅜	2⅞	7½	10	10	3	1974	1624	33.9
80	10¾	2⅞	8	10	11	3	2478	2054	40.7
90	11¾	2⅞	9	10	12	3	3008	2522	45.6
100	12¾	2⅞	10	12	13	4	3600	3022	49.6
125**	14	3½	12	14	13	4	5872	5110	63.4
extra heavy type									
25	5	2⅞	3½	6	5	2	378	335	12.5
30	5⁹⁄₁₆	2⅞	3½	6	6	2	498	447	14.6
35	6⅜	3½	4	8	6	2	731	655	19.0
40	7⅜	3½	5	8	7	3	985	868	23.5
47	8⅜	3½	6	8	8	3	1331	1160	28.6
55	9⅜	3½	6	8	9	2	1725	1485	33.9
62	10¾	3½	7	10	10	2	2217	1932	40.7
70	11¾	4+	7	10	10	3	2780	2460	45.6
77	12¾	4+	8	12	11	3	3542	3145	49.6
85	14	4+	8	12	12	3	4319	3812	63.4
90	14	4+	10	14	13	3	5288	4654	63.4
100	16	4+	10	14	14	3	6071	5244	82.7

*For ground setting, straight portion has additional length for foundation setting see detail page 6 and 7. For roof setting when pole is anchored through roof, additional length can be added as required.

**Furnished with extra heavy bronze revolving truck.

field joint





mounting details

Baartol can furnish flagpoles for any kind of mounting: on the ground, on the roof or on the wall. This catalog cannot cover every possible condition but Baartol engineers welcome the opportunity to work with the architect in solving difficult or unusual mounting problems.

vertical

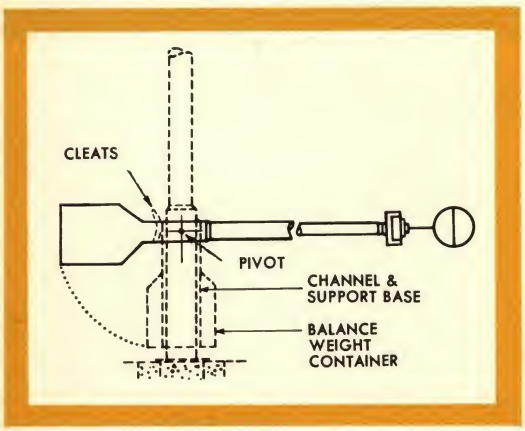
Vertical flagpoles may be placed on the roof or on the wall, as well as on the ground. See details on page 7. The structure of the building must be prepared to accommodate wall and roof—mounted poles.

outrigger

The mounting brackets for outrigger flagpoles must be built in the structure of the building. See details on page 7.

tilting—for ground or roof mounting

A little more expensive in first cost but simplifying maintenance, this mounting is available for aluminum poles only because of weight. The pole is counterbalanced and pivoted so one man can tilt it.



specification (abridged)

Flagpole shall be aluminum, seamless, cone tapered, complete with counter-balanced steel tilting arrangement, consisting of two vertical structural channels welded to base plate, steel container for counterweights, galvanized steel internal sleeve for mounting pole, pivot bolt, locking clips, and anchor bolts for concrete base, and lightning ground rod and wire, all as manufactured by Baartol Company, Inc., Kenton, Ohio. Flagpole shall be ____ ft. high. The tapered portion shall be ____ ft. long.

Finishing: Aluminum pole shall have satin brush finish heavily waxed. Steel tilting arrangement shall be given one shop coat of red lead and oil and two field coats of marine white.

in the ground specifications

Provide an integrally welded foundation tube assembly consisting of the following components: tube, base plate, tube support plate, grounding spike, and internal steel centering wedges. Tube shall be of 16 gauge galvanized corrugated steel*, ____ ft. long, ____ in. in diameter (see tables). Base plate shall be ⅜ (or ½″) steel ____ x ____ (see table). Centering wedges shall be welded inside tube and on plate.

Lightning grounding spike shall be ¾″ steel rod ____ ft. long (see detail for normal conditions; special site conditions may dictate a longer rod).

The excavation shall be at least four times pole butt diameter at the bottom and five times the butt diameter at the top and ____ ft. deep (see table or be governed by site conditions). After setting the tube in the hole as per manufacturers detail and making certain that grounding spike is properly grounded, the excavation shall be filled in one pour with 1-2-4 concrete to within ____ in. of finished grade. (Allow for marble, stone, or other special base or a grout cap of 1-2 concrete mix.)

After the concrete has cured at least 14 days, the pole may be erected. The pole shall be centered plumb and true in the tube with temporary wood wedges and then the tube shall be filled with screened dry sand and thoroughly tamped at 6″ intervals. The tamped sand shall be thoroughly moisture sealed with 2″ of approved caulking between pole and tube.

After the installation thus far has been inspected and approved by the architect, ornamental base No. ____ shall be lowered into place.

Note to contractor: If requested, the foundation tube assembly will be shipped prior to shipment of the flagpole. This may assist in expediting and coordinating the work.

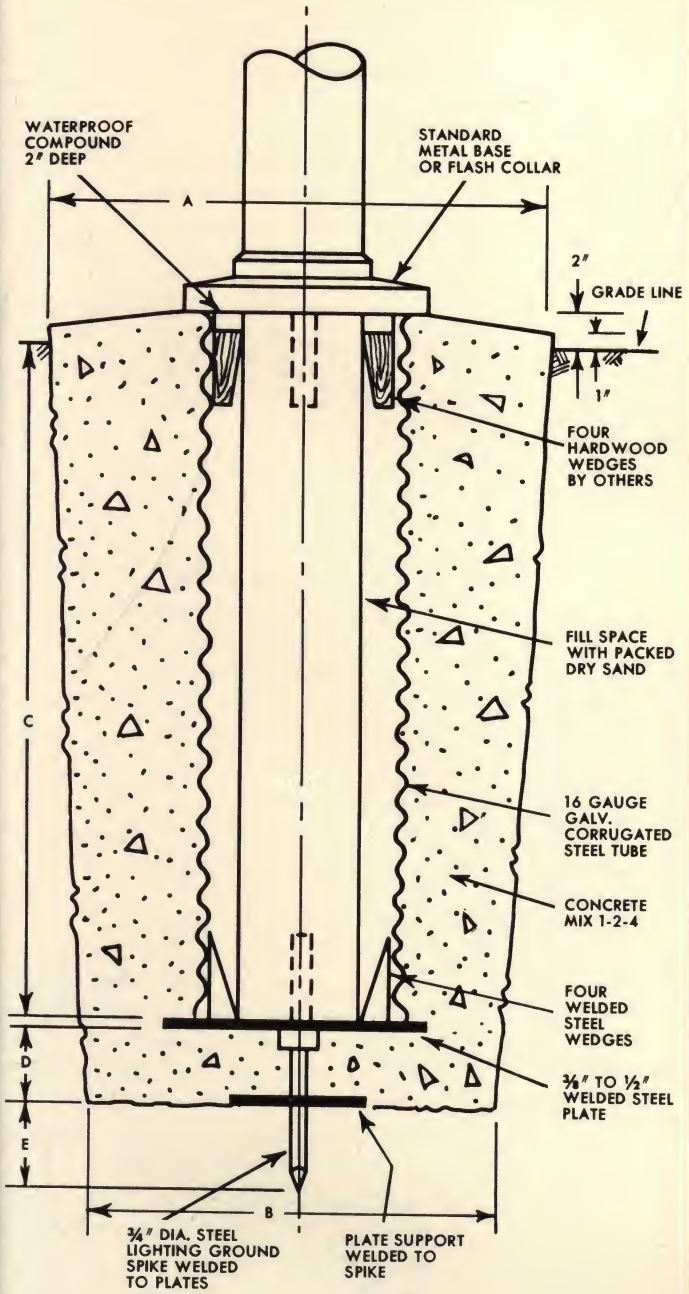
*Foundation ground tubes are furnished in three types, No. 16 gauge galvanized corrugated steel tube, No. 12 gauge rolled steel tube or standard seamless steel pipe. All tubes have an effective lightning ground rod spike with support plate welded to the base plate of tube, thus permitting lightning to pass directly to the soil. Separate ground rods of copper-clad or galvanized steel with horizontal copper wire attached to pole and rod may be used, however this method is not as effective as the welded spike method.

galvanized corrugated steel foundation tubes

butt diameter of pole	foundation tube diameter	base plate size	support plate size
up to 5½″ O.D.	8″ I.D. x #16 ga.	⅜″ x 12″ x 12″	⅜″ x 6″ x 6″
5⁹⁄₁₆″ O.D. thru 7″ O.D.	10″ I.D. x #16 ga.	⅜″ x 14″ x 14″	⅜″ x 7″ x 7″
7⅝″ O.D. thru 8⅜″ O.D.	12″ I.D. x #16 ga.	½″ x 18″ x 18″	½″ x 9″ x 9″
9⅝″ O.D. thru 12″ O.D.	15″ I.D. x #16 ga.	½″ x 20″ x 20″	½″ x 10″ x 10″
12¾″ O.D. thru 14″ O.D.	18″ I.D. x #16 ga.	½″ x 24″ x 24″	½″ x 12″ x 12″
15″ O.D. thru 16″ O.D.	21″ I.D. x #16 ga.	½″ x 27″ x 27″	½″ x 12″ x 12″
18″ O.D. thru 20″ O.D.	24″ I.D. x #16 ga.	½″ x 30″ x 30″	½″ x 14″ x 14″

flagpoles

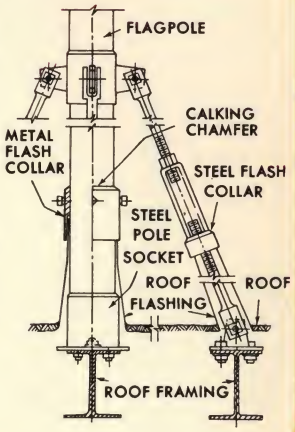
steel
aluminum



A.—Concrete base diameter at least five times the outside diameter of butt and never less than 30″ diameter.
B.—Concrete base diameter at least four times the outside diameter of butt and never less than 24″ diameter.
C.—Pole should set in foundation 10% of pole height above grade and never less than three feet.
D.—Concrete base footing thickness should be 0.15 inches for each foot of pole height above grade and never less than 4″ thick.
E.—Lightning rod ground spike should extend into solid ground for the same distance as footing thickness.

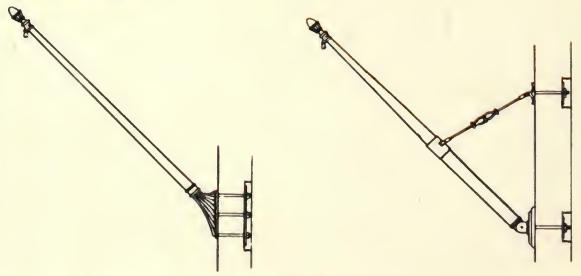
on the roof

Roof set flagpoles are furnished in cone tapered aluminum, cone tapered steel, swaged sectional steel (see pages 2 thru 5) and can be fabricated with rod (see illust.) or pipe turnbuckle types complete with brace collar, pole socket, brace plates, bolts, braces and flash collars.
Braced flagpole supports should be installed to roof framing of building when under construction for the most satisfactory installation. Fittings for these poles are found on page 8.



on the wall

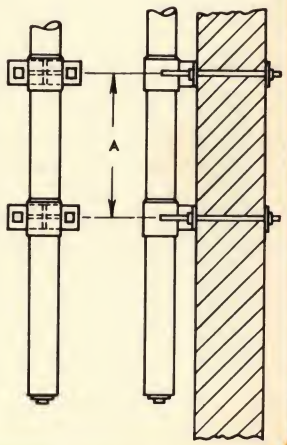
outrigger



Baartol outrigger flagpoles are made in tapered steel and aluminum with a wide variety of ornamental bases available in both the braced and unbraced types. This type flagpole is usually installed at a 45° fixed angle from the wall, and secured to wall with concealed fastenings. Unbraced poles should not exceed 15′-0″ in length while braced poles can be fabricated to 23′-0″ in length and to any angle. Additional information and data will be furnished upon request. Fittings for these poles are found on page 8.

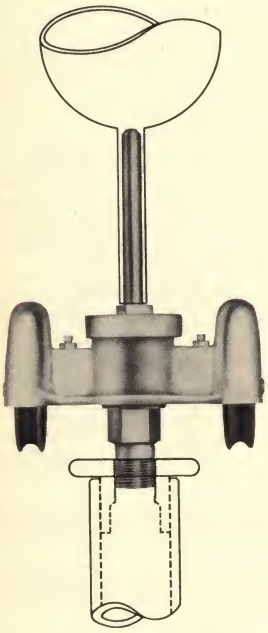
vertical

Baartol vertical wall mounted flag poles are made in tapered steel and aluminum and are available with several wall bracket arrangements. Aluminum poles can be furnished in lengths up to 44′-0″ and in steel up to 30′-0″. Bracket spacing (dimension A) for these poles should not be less than 10% of the overall pole length to insure rigid support. Additional information and data will be furnished upon request. Fittings for these poles are found on page 8.



flagpoles steel

fittings aluminum



truck assembly

Baartol double sheave revolving trucks are available in two sizes, (standard size) with two-2½″ diameter sheaves for top diameters up to 3½-in. and (extra heavy size) with two-4″ diameter sheaves for top diameters of 4-in. and over. These trucks are non-fouling and waterproof, are accurately machined and balanced with each truck equipped with two races, each containing thirteen ⅜-in. diameter ball bearings.

Each size Baartol truck is assembled with All Bronze parts and bearings or in All Aluminum parts with stainless steel bearings. They require no lubrication nor attention of any kind even under the severest weather conditions. Single sheave revolving trucks are also available in bronze and aluminum. *NOTE: Aluminum trucks should always be specified for aluminum poles.*



ball

Baartol seamless balls are available in No. 14 ga. spun aluminum (satin brushed waxed finish) mounted on a ¾-in. seamless aluminum tubing, and in 20 oz. spun copper seamless balls covered with 23-karat gold leaf over three coats of waterpoof paint, and one coat of waterproof gold sizing, with ball being soldered to a ¾″ brass tubing which slips over the bronze finial in the revolving truck. Chromium plated balls are available. Ball is also available with spread eagle which is hand made of heavy copper and covered with 23-karat gold leaf same as ball. Standard sizes are available in 6″ multiples from 24″ to 48″ spread. (Wingspread in inches should be about one half of pole height in feet.)



acorn pole cap with sheave

Cast acorn pole caps with single sheave pulley are made in steel, aluminum and bronze and are generally used at the top of outrigger poles. Gold leafed or aluminum balls may be substituted in place of the acorn if desired.

cleats

Baartol cleats are 9-in. long and are made in cast iron galvanized, cast aluminum, cast bronze and are tapped to pole with ⅜-in. flat head machine screws of identical material as in the cleats.



flagsnaps and halyards

Baartol swivel flagsnaps are furnished in bronze, aluminum and chromium plated bronze. These are spliced to the ends of halyards for securing to flag. Baartol halyards are supplied in ⅜″ diameter extra long fiber manila rope, 5/16″ diameter No. 10 or ⅜″ diameter No. 12 cotton braided rope. Each halyard is equipped with two galvanized thimbles and two swivel snaps.

installations

COVER: Cincinnati Armory and Field House—
University of Cincinnati
Architect: James E. Allen

Page 2: Woodward High School,
Cincinnati, Ohio
Architect: Charles Cellarius

U. S. Naval Medical Center—Washington, D. C.

Rio Tierra Junior High School—
Sacramento, Calif.

Pacific Telephone & Telegraph Co.—
Fresno, Calif.

Portage Paric—Chicago, Ill.

West Mesa Air Force Station—
Albuquerque, N. M.

U. S. Post Office—Fostoria, Ohio

U. S. Post Office—Shawnee, Okla.

U. S. Post Office—Hastings, Nebr.

U. S. Post Office—Corvallis, Oreg.

U. S. Post Office—Burlington, Wisc.

U. S. Post Office—Ann Arbor, Mich.

U. S. Post Offices throughout the U.S.A.

U. S. Printing Office—Washington, D.C.

Court House—Bloomington, Ill.

Garfield Senior High School—Hamilton, Ohio

Palmer Park Elementary School—
Prince Georges County, Md.

Veterans Administration Facility—
Fayettsville, N. C.

Lackawana High School—Lackawana, N. Y.

Manufacturers National Bank—Dearborn, Mich.

Shell Oil Company—Indianapolis, Ind.

Kensington Heights Housing Project—
Buffalo, N. Y.

General Electric Company—Evendale, Ohio

General Motors Corp.—Harmarville, Pa.

State Teachers College—Geneseo, N. Y.

U. S. Reserve Training Center—Rochester, N. Y.

Globe Union Bldg.—Dallas, Texas

United Steel Workers Building—Buffalo, N. Y.

Shriners Hospital—Lexington, Ky.

American Red Cross Headquarters—
Washington, D.C.

BAARTOL COMPANY, INC.

KENTON, OHIO • PHONE: Kenton 4032

A.I.A. FILE NO. 14-F

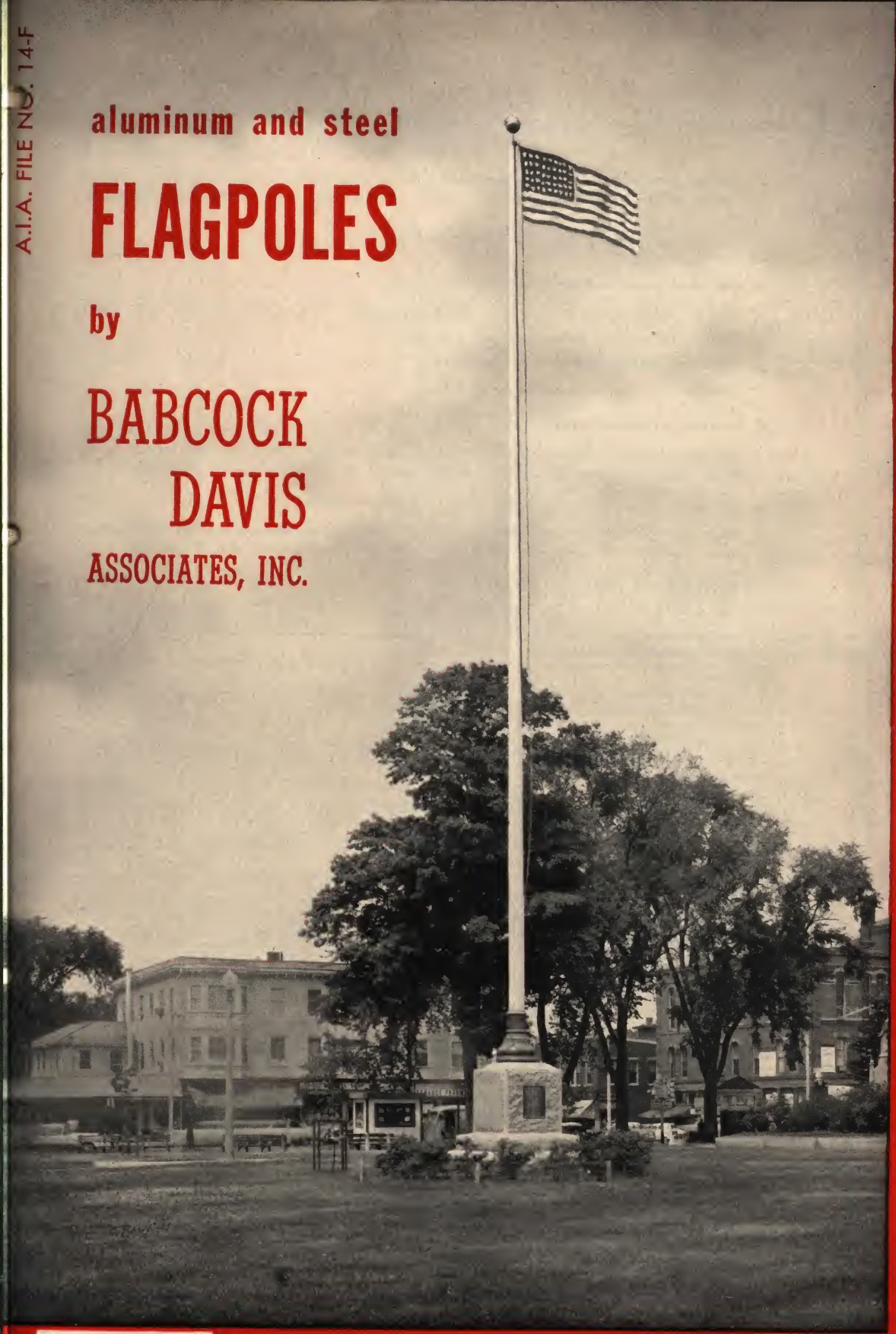
6g
Bab

aluminum and steel

FLAGPOLES

by

BABCOCK DAVIS ASSOCIATES, INC.

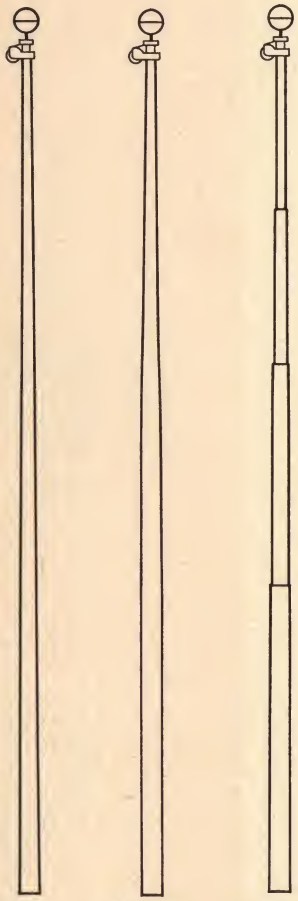


ESTABLISHED IN 1909

A.I.A. FILE NO. 14-F

steel flagpoles

importance of proper ground setting



conical tapered steel and aluminum pole

genuine venetian entasis steel pole

sectional steel pole

The proper foundation and setting of ground poles is important to the life of the pole. See detail below for suggested method of installation. For specific cases, write us for large scale detail.

types

■ conical tapered steel pole

Tapered portion has straight taper. No visible joints. Available in all sizes up to 20-inch butt.

■ conical tapered aluminum pole

Suitable up to 70-ft exposed height. 77 ft long.

■ sectional steel pole

Constructed from pipe or steel tubing in sizes graduated to give a graceful taper. Sections are telescoped, shrunk and welded together so that all joints are waterproof.

■ genuine venetian entasis steel tapered pole

Made on a true architectural entasis, curved taper for use where the finest poles are desired. Made of steel, with no visible joints. Available in all sizes up to 20-inch butt.

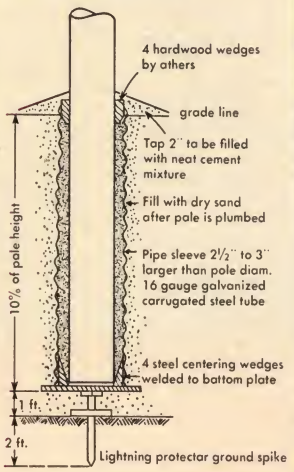
dimensions (aluminum poles)

exposed height, ft.	20	25	30	35	40	50	60	70	75	80	90	100
total length, ft.	23	28	33	38½	44	55	66	77	82½	88	99	110
conical tapered poles												
heavy pattern												
Out. Diam. of Butt, in	4	5	5	5 5/16	6	6 5/8	7 5/8	8 5/8	9 5/8	10 3/4	11 3/4	12 3/4
Out. Diam of Top, in	2 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/2	3 1/2
Length of taper, ft	15	12 1/2	12 1/2	16 1/2	19 1/2	24	31 1/4	38 1/2	45 1/2	53 1/2	58 3/4	66
Out. Diam. of Ball, in	4	5	6	6	6	8	8	8	10	10	10	10
Shipping Weight, lb	120	360	425	550	705	1010	1425	1905	2320	2680	3500	4300
extra heavy pattern												
Out. Diam. of Butt, in	5	5 5/16	6	6 5/8	7 5/8	8 5/8	10 3/4	11 3/4	12 3/4	14	14	16
Out. Diam. of Top, in	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	4	4	4	4
Length of Taper, ft	12 1/2	16 1/2	19 1/2	24	31 1/4	38 1/2	53 1/2	60 1/2	62 1/2	71 1/2	71 1/2	85 3/4
Shipping Weight, lb	285	400	605	705	925	1275	1750	2200	2700	3400	4200	5000
sectional poles												
light pattern												
Out. Diam. of Butt, in	3 1/2	4	4 1/2	4 1/2	5	5 5/16	6 5/8	7 5/8	8 5/8	9 5/8	10 3/4	11 3/4
Out. Diam of Top, in	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8
Shipping Weight, lb	185	260	315	370	515	715	920	1375	1610	2000	2500	3100
heavy pattern												
Out. Diam. of Butt, in	4	4 1/2	5	5	5 5/8	6 5/8	7 5/8	8 5/8	9 5/8	10 3/4	11 3/4	12 3/4
Out. Diam. of Top, in	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8
Shipping Weight, lb	230	320	420	485	600	850	1325	1650	2000	2600	2900	3760

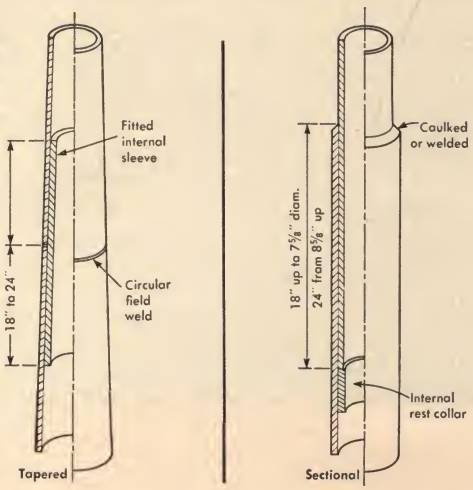
specifications

Furnish and erect Babcock-Davis (conical straight tapered or genuine venetian entasis with curved tapered or sectional) steel flagpole.....ft. exposed height,.....in. at butt,.....in. at top. Equipped with.....in. 23 karat gold leafed copper ball; ball bearing, non-fouling revolving (single or double, cross out one) halyard top, continuous braided cord halyard with invisible connectors; bronze swivel flag snaps and cleat all as made by Babcock-Davis Associates, Boston 27, Mass.

ground setting



field joints

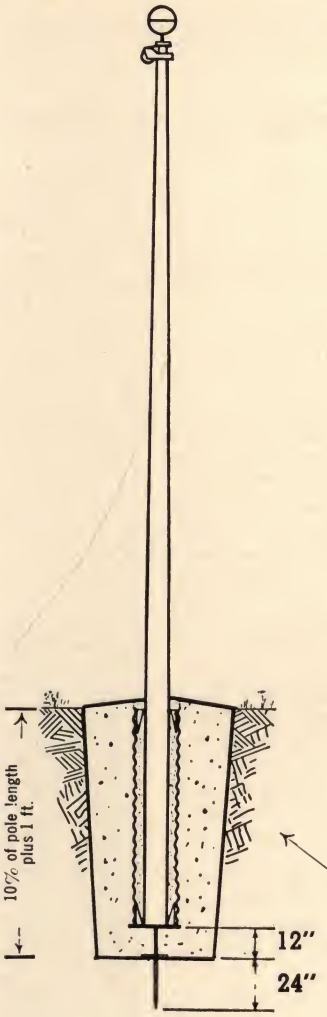


entasis tapered and conical tapered steel poles: To avoid the hard work of driving two tight fitting self-aligning sections together in the field, we can apply a pulling device at no extra charge to be removed by erector while making circumferential weld and grinding smooth.

sectional poles: When substantial savings can be made in freight pole may be shipped in two or more sections.

aluminum flagpoles — cone tapered

● ground set



advantages and features

Babcock-Davis aluminum flagpoles are of the very finest workmanship and designed to be permanent, economical, with minimum care. The poles are made of seamless aluminum tubing specification 6063-T6, heat treated, age hardened, machined to a bright satin brush finish, then waxed. No painting ever required of exposed pole. It should be allowed to weather. Portion of pole in the ground is shop painted with black asphaltum inside and outside.

specifications

Furnish and erect cone tapered (tapered portion has straight taper), ground set flagpole of seamless cold drawn 6063-T6 aluminum tubing with 3/16" wall. No visible joints. Poles to have satin brush finish and waxed. State size from list below.

Equipped with:.....14 ga. aluminum ball satin-brush finished and waxed, or 23-karat gold-leafed copper ball; B-D ball bearing aluminum, non-fouling revolving halyard top (single or double sheave, cross out one); continuous braided cord halyards with invisible connectors; aluminum swivel flag snaps and aluminum cleats.

Furnish 16 ga. corrugated galvanized foundation tube with self-centering bottom plate and lightning protector ground spike.

If ornamental aluminum base is wanted, state pattern from list below.

All as made by Babcock-Davis Associates, Inc., Boston 27, Mass.

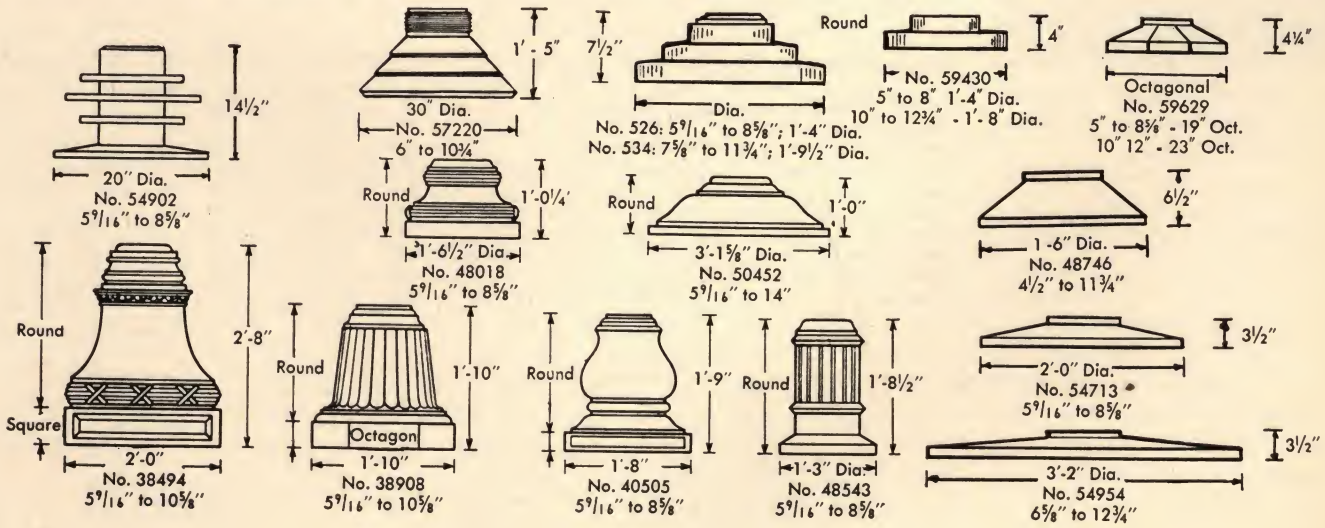
dimensions (aluminum poles)

Exposed Height, ft.	9	12	17	22	27	30	35	40	50	59
Total Length, ft.	12	15	20	25	30	33½	38½	44	55	65
Out. Diam. of Butt, in.	3½	4	4½	5	5½	6	7	8	10	12
Out. Diam. of Top, in.	2⅜	2⅜	2⅞	3¼	3½	3½	3½	3½	4	5
Tapered Length	6'	9'	9'	9'8"	11'	13'9"	19'3"	24'9"	33'	38½'
Ball, in.	4	4	5	5	6	6	6	8	10	12
Pole Weight, lbs.	27	40	60	82	110	135	181	243	380	625
Shipping Weight, lbs.	45	60	95	135	185	230	280	375	525	800

Depth of concrete base recommended is 10% of the pole length plus 1 ft. under normal soil conditions.

Diameter at top of concrete base 5 times outside butt diameter, minimum diameter 30".

● ornamental bases — aluminum and cast iron



aluminum flagpoles

• counter balanced-ground set

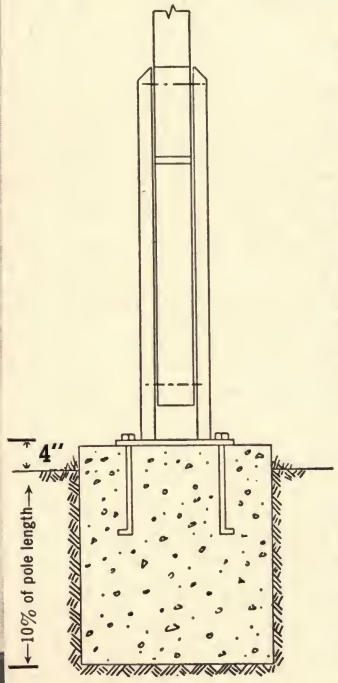


B-D aluminum cone tapered 40'-0" "easy access" counter-balanced flagpole.

Babcock-Davis have been building "Easy Access" Tilting flagpoles for more than 25 years and have built up a reputation of "They Know How" to produce quality flagpoles and other products.

By specifying this product, you are assured of the best.

It is not practical or economical to counterbalance heavy steel poles. Use geared type shown on page 7.



detail of base and location of bolts.

advantages

light weight • easy to erect • easy to raise and lower • pole never needs painting

specifications

Furnish and erect Babcock-Davis "Easy Access" counterbalanced aluminum flagpole as made by the Babcock-Davis Associates, Inc. of Boston 27, Massachusetts. Pole, cone tapered (tapered portion has straight taper) seamless, cold drawn 6063-T6 aluminum tubing with 3/16" wall. No visible joints. Overall height.....feet; butt diameter, ...inches O.D.; top diameter,.....inches O.D.; with steel base, counter-weight, bottom plate and anchor bolts. State size from list below.

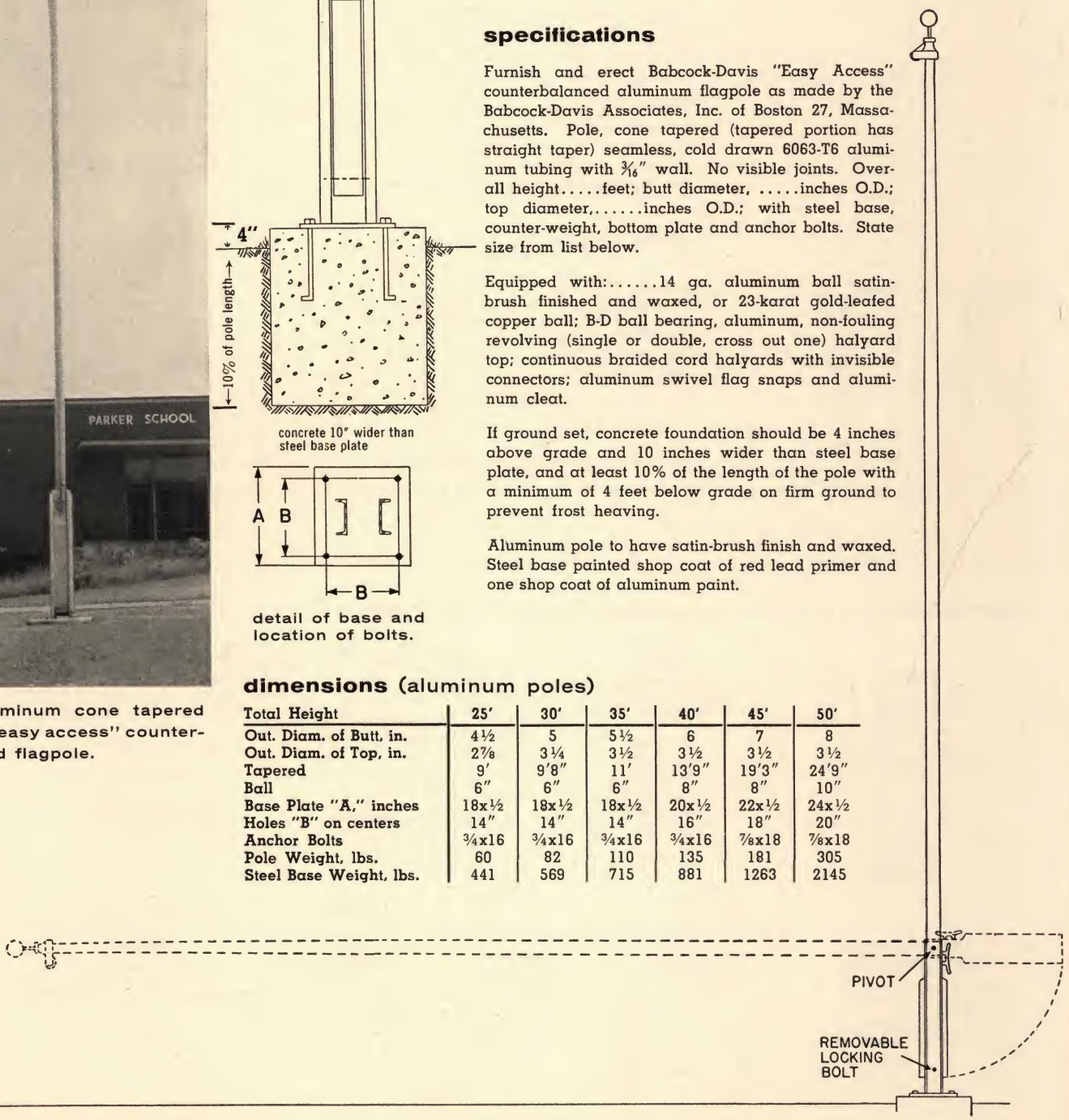
Equipped with:.....14 ga. aluminum ball satin-brush finished and waxed, or 23-karat gold-leafed copper ball; B-D ball bearing, aluminum, non-fouling revolving (single or double, cross out one) halyard top; continuous braided cord halyards with invisible connectors; aluminum swivel flag snaps and aluminum cleat.

If ground set, concrete foundation should be 4 inches above grade and 10 inches wider than steel base plate, and at least 10% of the length of the pole with a minimum of 4 feet below grade on firm ground to prevent frost heaving.

Aluminum pole to have satin-brush finish and waxed. Steel base painted shop coat of red lead primer and one shop coat of aluminum paint.

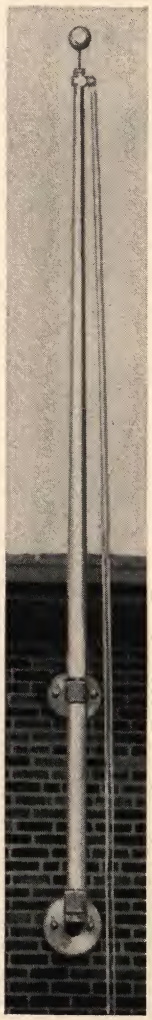
dimensions (aluminum poles)

Total Height	25'	30'	35'	40'	45'	50'
Out. Diam. of Butt, in.	4½	5	5½	6	7	8
Out. Diam. of Top, in.	2⅞	3¼	3½	3½	3½	3½
Tapered	9'	9'8"	11'	13'9"	19'3"	24'9"
Ball	6"	6"	6"	8"	8"	10"
Base Plate "A," inches	18x½	18x½	18x½	20x½	22x½	24x½
Holes "B" on centers	14"	14"	14"	16"	18"	20"
Anchor Bolts	¾x16	¾x16	¾x16	¾x16	⅞x18	⅞x18
Pole Weight, lbs.	60	82	110	135	181	305
Steel Base Weight, lbs.	441	569	715	881	1263	2145



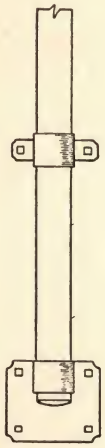
aluminum flagpoles

• wall mounted

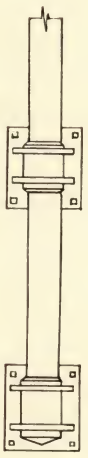




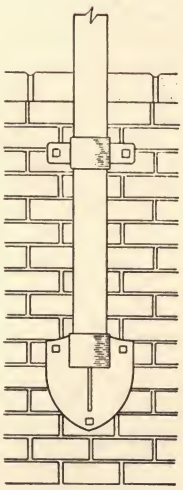
Type "E"



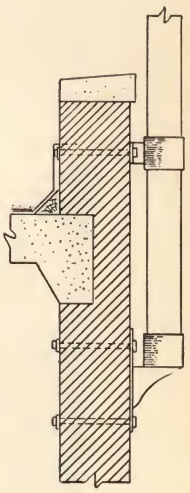
Type "C"



Type "F"



Type "D"



specifications

Furnish and erect cone tapered (tapered portion has straight taper), vertical wall mounted flagpole of seamless cold drawn 6063-T6 aluminum tubing with 3/16" wall. No visible joints. Poles to have satin brush finish and waxed. State size from list below.

Equipped with:.....14 ga. aluminum ball satin-brush finished and waxed, or 23-karat gold-leafed copper ball; B-D ball bearing aluminum, non-fouling revolving (single or double, cross out one) halyard top; continuous braided cord halyards with invisible connectors; aluminum swivel flag snaps and aluminum cleats.

Specify galvanized or aluminum wall brackets Type "C," "D," "E," or "F," and anchor bolts.

All as made by Babcock-Davis Associates, Inc., Boston 27, Mass.

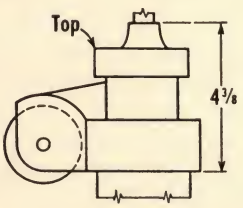
dimensions (aluminum poles)

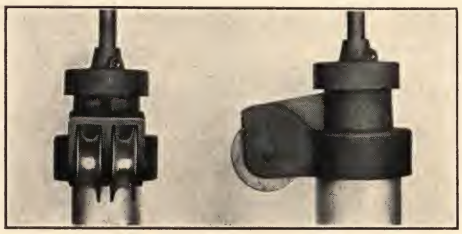
Exposed Height, ft.	9	12	17	22	27	30	35	40
Total Length, ft.	12	15	20	25	30	33½	38½	44
Out. Diam. of Butt, in.	3½	4	4½	5	5½	6	7	8
Out. Diam. of Top, in.	2⅜	2⅜	2⅞	3¼	3½	3½	3½	3½
Tapered Length	6'	9'	9'	9'8"	11'	13'9"	19'3"	24'9"
Ball, in.	4	4	5	5	6	6	6	8
Pole Weight, lbs.	27	40	60	82	110	135	181	243
Shipping Weight, lbs.	45	60	95	135	185	230	280	375

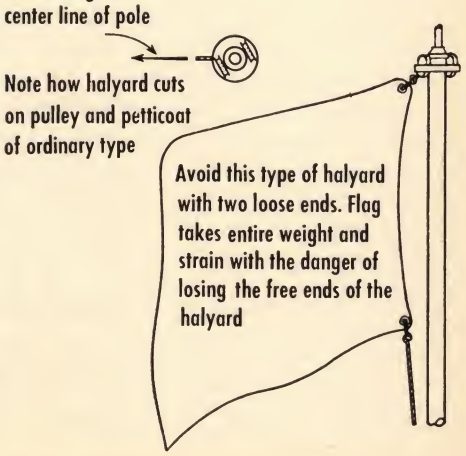
• halyard top — non-fouling, revolving

galvanized aluminum, or bronze top as specified

This Top does not cut or chafe the halyards. Allows flag or flags to fly without fouling. Double pulleys on one side only: thus double halyards pull together over pulleys, not across their edges. Ball-bearing construction responds to slightest shift in breeze. Invisible halyard connector eliminates free ends; takes strain off flag. Spire can take ball or special finial.

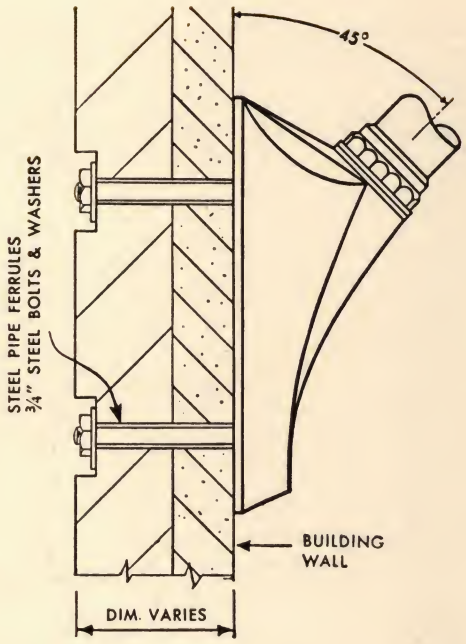


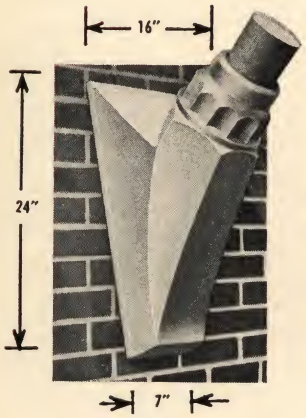




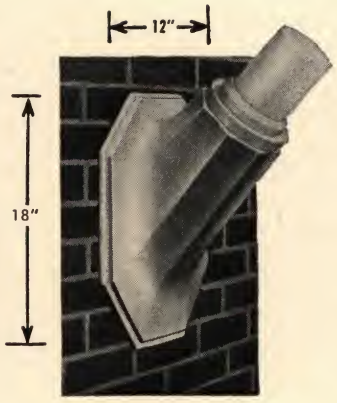
• outrigger bases — without braces



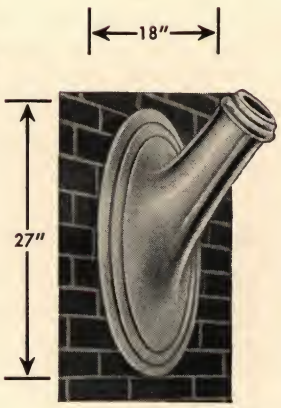




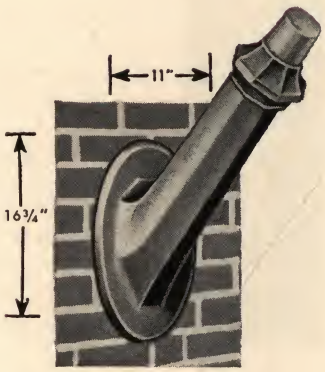
no. 5 base
3½" to 5" O.D.



no. 6 base
3½" to 4" O.D.



no. 7 base
3½" to 4" O.D.



no. 3 base
3½" to 4" O.D.

bases: Made in aluminum, bronze, stainless steel and cast iron.

flagpoles: Conical tapered seamless cold drawn aluminum tubing.

Pole supported at 45° angle with base bolted through the wall. For vertical mounted poles on the face of a building (see page 5).

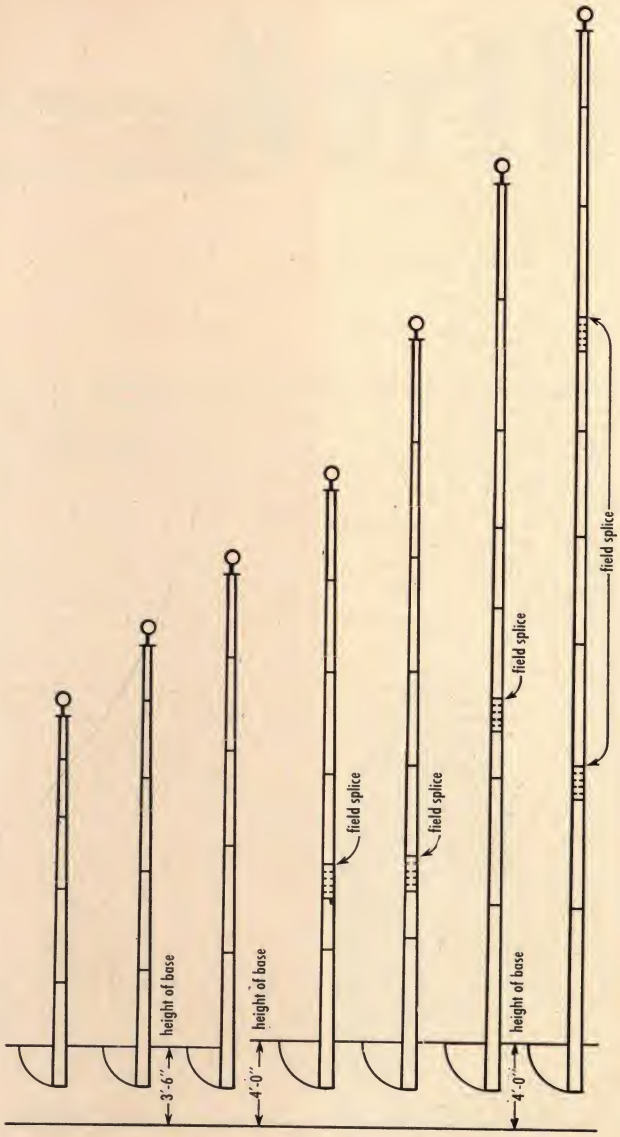
specifications

Furnish and erect Babcock-Davis Outrigger Conical Tapered 6063-T6 Aluminum Tubing, 3/16" Wall, Flagpole ..... ft. long, butt ..... inch O.D., top ..... inch O.D. with type ..... decorative base (state metal of base), for wall mounting. Pole fittings: acorn cap, swivel block, cleat, all of same metal as base. Halyards with invisible connectors, bronze swivel flag snaps, steel anchor bolts and nuts.

dimensions (aluminum poles)

Total Length, ft.	12	15■	20■	25■
Out. Diam. of Butt, in.	3½	4	4½	5
Out. Diam. of Top, in.	2⅜	2⅜	2⅞	3¼
Tapered Length, ft.	6	9	9	9'8"
Ball, in.	4	4	5	5

■ For poles 20 feet and longer, bracing is recommended.



conical taper or sectional steel poles

specifications

Furnish and erect Babcock-Davis "Easy Access' (Geared type, conical tapered, or sectional) Flagpole ..... ft. high; ..... in. at butt; ..... in. at top (if canted, specify degree of angle). To be equipped with operating wrench; ..... inch 23-karat gold leafed copper ball; ball bearing, non-fouling revolving (single or double; state which) halyard top; continuous braided cord halyards with invisible connector; bronze swivel flag snaps and cleat.

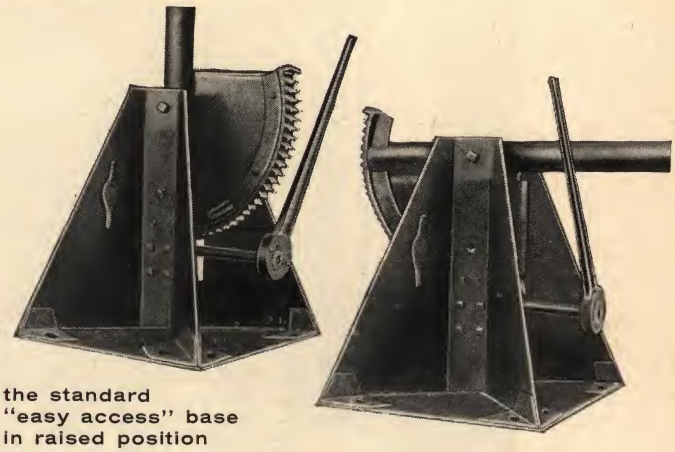
roof installations: Form island on roof and set anchor bolts (furnished by others) according to shop drawings furnished.

grade installations: Form island of concrete, 4'6" deep and set 8 anchor bolts, 1" diameter, 4' long (furnished by others)—same width of concrete and spacing of holes as shown for roof installation.

dimensions & weights of sectional steel poles

size (& height) of base	no. 2: 3½ ft.			no. 3: 4 ft.		no. 4: 4 ft.	
hgt. above roof grade, ft.	**25**	**30**	**35**	**40**	**50**	**60**	**70**
Out. diam. of top, in.	2⅜	2⅜	2⅜	2⅞	2⅞	2⅞	2⅞
Out. diam. of bottom, in	4½	5	5	5⅝	6⅝	7⅝	8⅝
Diam. of ball, in.	6	6	6	8	8	10	10
Weight: pole, lb.	210	305	335	650	775	1225	1725
base & quadrant, lb.	350	475	475	775	775	1250	1250
total (shipping), lb.	560	780	810	1425	1550	2475	2975
No. shipping sections	1	1	1	2	2	2	3

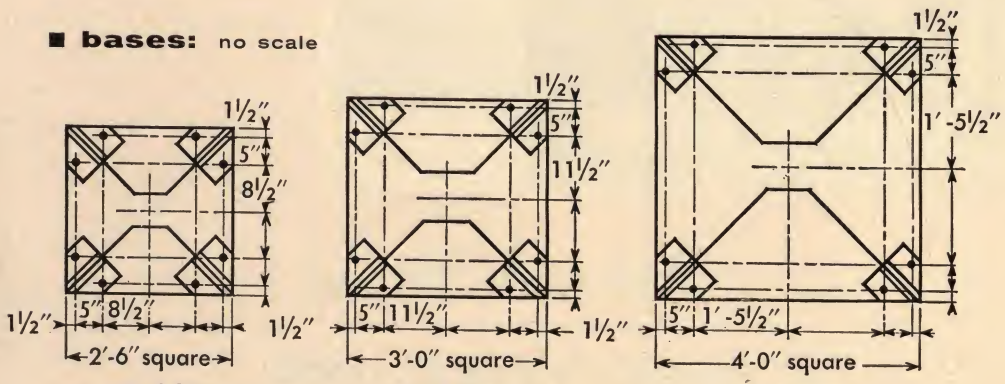
base construction



the standard "easy access" base in raised position

in lowered position

■ **bases:** no scale



no. 2 base for 25' to 35' poles
foundation plate ⅜" thick

no. 3 base for 40' to 50' poles
foundation plate ½" thick

no. 4 base for 60' to 70' poles
foundation plate ¾" thick

Poles can be made of cone tapered steel or aluminum.

TYPICAL INSTALLATIONS OF *Babcock-Davis* "EASY ACCESS" FLAG POLES

White House Executive Mansion
U. S. Capitol, Senate Roof
U. S. Capitol, House Chamber Roof
U. S. Air Force, Langley Field, Va.
Sharpe General Depot, Lathrop, Cal.
Marine Corps Depot, Oceanside, Cal.
Toolen High School, Mobile, Ala.
St. Mary's Church, Mobile, Ala.
Southern Bell Telephone, Decatur, Ala.
City Hall, Andalonsia, Ala.
S. H. Kress Co., Montgomery, Ala.
Woolworth Bldg., Little Rock, Ark.
Southwestern Irrigation, Brawley, Cal.
Loose Wiles Biscuit Co., Oakland, Cal.
Laguna Telephone Bldg., Laguna, Cal.
Los Angeles Examiner Bldg., Los Angeles
General Petroleum Bldg. (2), Los Angeles
Appraisers Bldg. (2), San Francisco, Cal.
F. Kern & Sons, San Francisco, Cal.
S. H. Kress Co., Colorado Springs, Colo.
High Standard Mfg. Co., New Haven
State Trade School, Hartford, Conn.
Fire Stations 5 & 6 (2), Milford, Conn.
First National Stores, Hartford, Conn.
Masonic Home, Wallingford, Conn.
Borch & Stevens Bakery, Bridgeport, Conn.
Hartford Machine Screw Co., Windsor
Southern Bell Tel. Co., Miami, Fla.
Register & Tribune Bldg., Des Moines
Liberty Bldg., Des Moines, Iowa
John Deere School, East Moline, Ill.
Illinois Bell Telephone Bldg. (7), Ill.
Central National Bank of Chicago
Kankakee Dial Office Bldg. (2)
Central Police and Court Bldg., Chicago
R. R. Donnelley & Sons Co., Chicago, Ill.
Commonwealth Edison Co., Stickney, Ill.
Standard Data Service, Evansville, Ind
Department Store Bldg., Indianapolis
Times Publishing Bldg., Indianapolis, Ind.
Indiana Bell Telephone, South Bend, Ind.
Murphy Stores, Fort Wayne, Ind.
Iowa Methodist Hospital, Des Moines
S. H. Kress Co., Wichita, Kan.
Swift & Co., Kansas City, Kan.
Louisville Baseball Grounds, Louisville
Western Electric, New Orleans, La.
Gus Mayer Store Bldg., New Orleans, La.
American Bank Bldg., New Orleans, La.
Old Post Office, Portland, Me.
Press Herald Bldg., Portland, Me.
W. T. Grant Co., Bangor, Me.
N. E. Tel. & Tel., Biddeford, Me.
Hecht Co., Dept. Store, Silver Spring
Bethlehem Steel Co., Sparrows Point, Md.
C. & P. Telephone Bldg., Silver Spring, Md.
U. S. Horticultural Station, Beltsville, Md.
Boston Edison Co. (3), Boston, Mass.
Cadillac Building, Boston, Mass.
South Boston Housing Project, Boston, Mass.
New England Tel. & Tel. (4), Mass.
John Hancock Life Ins. Bldg., Boston, Mass.
Brookline Savings Bank, Brookline, Mass.
Woolworth Store, Cambridge, Mass.
A. G. Spalding & Bros., Chicopee, Mass.
Greenfield Tap & Die Corp., Greenfield, Mass.
General Electric, Lynn, Mass.
Bay State Merchants Nat'l Bank, Lawrence
Grade School, Norton, Mass.
Gun Directors Building, G. E., Pittsfield
General Electric Co., Pittsfield, Mass.
St. John Evangelist Church (2) Winthrop
General Motors, Detroit, Mich.
Mumford High School, Detroit, Mich.
C. F. Haglin & Sons, Minneapolis, Minn.
Famous Bars Co. Store (2), Clayton, Mo.
K.F.E.Q. Bldg., St. Joseph, Mo.
Brotherhood Building, Kansas City, Mo.
Seacoast Realty, Wilmington, N. C.
Christian Science Home, Concord, N. H.
Town of Jaffrey, N. H.
James Webb Store, Grand Island, Neb.
Asbury Park Theatre, Asbury Park, N. J.
First National Bank, Plainfield, N. J.
Union Freight Terminal No. 3 (4), Newark
Fourth Federal Savings Bank, New York, N. Y.
South Brooklyn Savings Bank, Brooklyn, N. Y.
University of Buffalo Law School, Buffalo
New York Public Library (3 branches)
Irving Trust Bldg., New York, N. Y.
Brooklyn Savings Bank, Buffalo, N. Y.
Fairchild Press, New York City
G. E. Research Laboratory, Schenectady
General Electric Co., Schenectady, N. Y.
W. T. Grant, Syracuse, N. Y.
Electronics Park (2), Syracuse, N. Y.
Women's Relief Corps Home, Oxford, N. Y.
Charles Schad Inc., Brooklyn, N. Y.
Ohio Bell Tel. Co. (2), Ohio
Thompson Aircraft Products Co., Cleveland
Mt. Carmel Hospital, Columbus, Ohio
Ohio State Journal, Columbus, Ohio
Akron Baptist Temple (2), Akron, Ohio
East Ohio Gas Co., Cleveland, Ohio
H. & S. Pogue Service Building, Cincinnati, Ohio
Mercy Hospital, Hamilton, Ohio
Fred Jones Motor Co., Tulsa, Okla.
South Side Jr. High, Allentown, Pa.
Municipal Building, Coraopolis, Pa.
State College (V.F.W.), State College, Pa.
Russeks Fifth Avenue, Inc., Philadelphia, Pa.
Penn Threshermen Office Building, Harrisburg, Pa.
Atlantic Refining Co., Philadelphia, Pa.
General Motors Corp., Pittsburgh, Pa.
United Motors Warehouse, Pittsburgh, Pa.
Williamsport Municipal Airport, Williamsport, Pa.
C. H. Masland & Sons, Carlisle, Pa.
R. I. Hospital Trust Co., Woonsocket, R. I.
Savings Bank of Newport, Newport, R. I.
S. H. Kress Co., Spartanburg, S. C.
Elementary School, Charleston, S. C.
Tennessee Copper Co. Building, Copperhill, Tenn.
Kimberly-Clark Corp., Memphis, Tenn.
Employers Casualty Co., Dallas, Tex.
Lichtenstein Store, Corpus Christi, Tex.
Beaumont Telephone Building, Beaumont, Tex.
Montgomery Ward Co., Fort Worth, Tex.
Sweeney Ind. School, Sweeney, Tex.
San Angelo College, San Angelo, Tex.
J. W. Bateson, Midland, Tex.
Niesner Store, San Antonio, Tex.
Brooks Transfer Co., Richmond, Va.
Elementary School, Norfolk, Va.
Appalachian Electric Power Co., Roanoke, Va.
Doyle & Russell (5), Hallwood, Va.
New N. & W. Office Building, Bluefield, W. Va.
C. & P. Telephone Co. (2), W. Va.
Carbide & Carbon Chemical Co., So. Charleston
Enginering Bldg. (2), Madison, Wis.
Schlitz Brewery, Milwaukee, Wis.
Skobis Co. (2), Milwaukee, Wis.
Plankinton Packing Co., Milwaukee, Wis.
County Hospital, Winnebago, Wis.
Whatcom County Courthouse, Billingham, Wash.
Federal Reserve Bank, Seattle, Wash.
Selah Hospital, Selah, Wash.
Bunker Hill High School, Washington, D. C.
Calvin Coolidge High School, Washington, D. C.
Central Public Library, Washington, D. C.
National Guard Armory, Washington, D. C.
U. S. Naval Air Station, Anacostia, D. C.
Telephone Buildings (5), Washington, D. C.
Post Intelligence Building, Washington, D. C.
U. S. Air Station, San Juan, Puerto Rico
American Embassy, Quito, Ecuador
Caracas Stadium, Venezuela

65-foot cone tapered flagpole Harvard University







Babcock-Davis

ASSOCIATES, INC.

474 DORCHESTER AVENUE • BOSTON 27, MASS.

6g
No

North American *flagpoles*



STEEL

straight tapered
entasis tapered
swaged

ALUMINUM

tapered

catalog no. 60

NORTH AMERICAN IRON & STEEL CO., INC.
FIRST AVENUE & 58th ST., BROOKLYN 20, N. Y. PHONE GEdney 9-6247

flagpoles

by naisco

Manufacturers of a full line of flagpoles in steel, aluminum, bronze, stainless steel, and wrought iron. These poles are made in 3 types . . . STRAIGHT TAPERED, ENTASIS TAPERED, SWAGED SECTIONAL, for ground or wall setting.

NAISCO flagpoles are constructed and erected in accordance with the specifications of the U.S. Government, and other jurisdictional bodies. Complete installation information, with blueprints, accompany each shipment.

straight taper

Fabricated without visible joints, seams, or offsets. The upper portion of these flagpoles is tapered.

entasis taper

Pole differs from the straight taper in that the pole is tapered with the classic curve tapering, instead of the straight line taper. The fabrication of this type pole is somewhat more complicated than the straight tapered, and is therefore more costly. The result is a monumental, classic effect, ideally suited to buildings in the classic tradition.

swaged sectional

Pole consists of a series of telescoping sections of seamless steel tube. Each section is swaged and shrunk to the next and the joints are welded airtight and watertight.

fittings

Balls—Made of 20 oz. copper of any desired diameter, painted and sized and covered with 23 kt. gold leaf. They are mounted on galvanized rods. Special ornaments, eagles, weather vanes, etc. are available.

Trucks—of two types—the heavy type is 8 in. in diameter. The body and king pin are galvanized. The pins are bronze. Bearings are manganese bronze. The smaller type is 7″ diameter and used for poles 25′ and less.

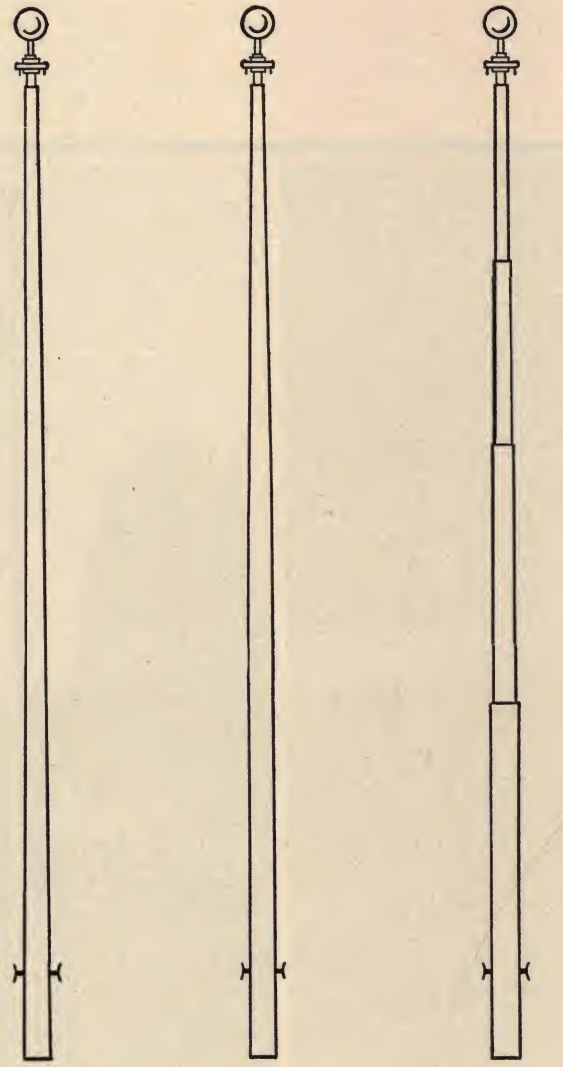
Cleats—Galvanized; generally 9 in. long but may be obtained from 4 to 18 in. long, to suit special conditions.

Halyards—Of best grade Manila fibre, conforming to U.S. standards, generally 3/8 in. in diameter, but any other size can be furnished.

Snap Hooks—Of the heavy swivel type, chrome plated brass.

Note: All of the above mentioned galvanized materials may be obtained in solid bronze or aluminum.

basic types



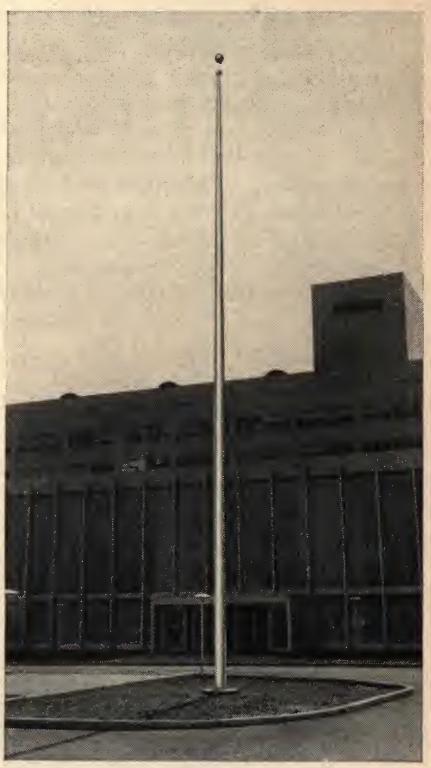
straight tapered | entasis tapered | swaged sectional

specifications listed on pages 4, 5 and 6

flagpoles *by naisco*



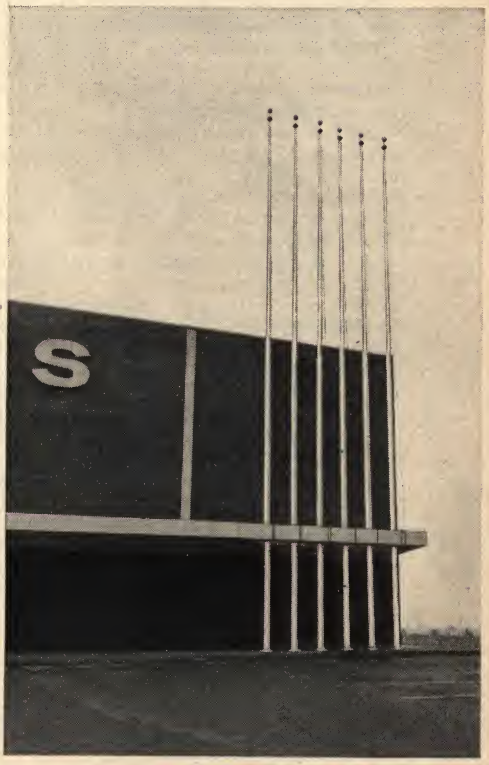
100′ flagpoles
New York World's
Fair 1939



60-foot aluminum
flagpole
New York University
Bellevue Medical
Center, New York.
N. Y.
Skidmore Owings &
Merrill, Architects



3 of 90 aluminum poles furnished
at Fifth Avenue as part of New York City's
"Salute to the Seasons".



Gimbels, Valley Stream, New York
Dyker Building Co., General Contractors
Irwin Chanin, N. Y. C., Architect.

STEEL FLAGPOLES

STRAIGHT TAPERED

North American STRAIGHT TAPERED steel flagpoles are sturdy and attractive. They are tapered in a smooth, uninterrupted manner without offsets or visible joints. The lower portion of each pole is fabricated of seamless standard weight steel pipe of wall thickness varying from 1/4" to 1/2" as the diameter changes with the height flagpole chosen. The upper portion of the flagpole is tapered uniformly with a standard taper of 1" in 7.14' of height. The tapered section has a wall thickness of 1/4". Poles over 34' in length are generally shipped in 2 sections with provisions made for field splicing in a quick and neat manner.

specifications

a—Furnish and erect where indicated on plans a straight tapered steel flagpole as manufactured by the North American Iron & Steel Co., Inc. of Brooklyn 20, N. Y. Material used for the mast and fitting is to be new and full weight. If requested by the Architect the manufacturer is to furnish mill certificates covering the pipe and tubing used.

b—The Flagpole is to be set in the concrete foundation as shown in the detail.

c—The exposed height of the flagpole is to be _____ with the overall height to be _____. The pole is to be the (standard) (extra heavy) type with a butt diameter of _____ inches and a top diameter of _____ inches.

d—The lower portion of the flagpole is to be of standard weight seamless steel pipe of diameter indicated. The upper portion of the pole is to be straight tapered with a uniform taper of 1" in 7.14'. The minimum wall thickness of the tapered section is to be 1/4". The pole surface shall be smooth without offsets or visible joints. If, due to shipping restrictions, the pole is shipped in more than one section, provision for field splicing is to be made. An internal sleeve is to be provided so that no bolts need be used in making a neat and secure field welded splice.

e—Provide a foundation tube of 12 gauge steel of diameter and length shown in detail. Foundation tube is to be provided with base plate, lightning spike, welded centering wedges at the lower end and either centering bolts or loose wedges at the top for plumbing the pole after erection.

f—Where no ornamental base is used an 18" ground protector is to be provided with a minimum thickness of 1/4". The ground protector is to extend 12" above grade and is to be welded to pole.

g—The flagpole is to be furnished with a ball of _____" diameter. The ball is to be of 20 oz. copper covered with 23 karat gold leaf over 3 coats of waterproof paint.

h—The flagpole truck is to have a (bronze) (cast iron) body revolving on a bronze spindle with a bearing containing 1/4" stainless steel balls. The truck is to be non fouling and is to be equipped with two 4" bronze sheaves mounted on monel metal shafts.

i—Furnish two 9" (cast iron) (bronze) cleats at convenient height. Cleats shall be bolted to pole with 5/16" galvanized steel bolts for cast iron cleats and brass bolts for bronze cleats.

j—Provide two sets of 3/8" standard manila rope halyards each with two brass swivel snaps for flag attachment.

k—Exposed portions of flagpole and the sleeve are to be given a shop coat of red metallic primer. The flagpole is to be painted with 2 field coats of marine white lead and oil.

NOTE: The foundation detail on page 5 indicates a flash collar. An ornamental base may be substituted from the bases shown on page 7. Please specify base by number after checking to be sure that the base is suitable for the butt diameter required.

In addition to the fittings specified flagpoles can be furnished with one or two cleat covers, eagle in combination with the ball (specify wingspan) or eagle and arrow weathervanes.

If desired, cotton braided, nylon or bronze core halyards can be furnished instead of manila rope.

dimensions

	straight tapered, standard						straight tapered, extra heavy					
exposed height, ft.	overall height, ft.	length of tapered section, ft.	butt diam., in.	top diam., in.	ball diam., in.	approx. weight, lbs.	overall height, ft.	length of tapered section, ft.	butt diam., in.	top diam., in.	ball diam., in.	approx. weight, lbs.
25	27 1/2	12 1/2	5	3 1/4	5	395	28	16 1/2	5	3 1/4	5	425
30	33	12 1/2	5	3 1/4	6	455	33	16 1/2	5 9/16	3 1/4	6	507
35	38 1/2	16 1/2	5 9/16	3 1/4	6	578	38 1/2	24	6 5/8	3 1/4	6	675
40	44	16 1/2	5 9/16	3 1/4	6	660	44	24	6 5/8	3 1/4	6	785
45	49 1/2	24	6 5/8	3 1/4	8	895	49 1/2	37	8 5/8	3 1/4	8	1030
50	55	24	6 5/8	3 1/4	8	1005	55	38 1/2	8 5/8	3 1/4	8	1114
60	66	31 1/4	7 5/8	3 1/4	8	1378	66	53 1/2	10 3/4	3 1/4	8	1574
70	77	38 1/2	8 5/8	3 1/4	10	1638	77	60 1/2	11 3/4	3 1/4	10	2051
80	88	53 1/2	10 3/4	3 1/4	12	2039	88	67 3/4	12 3/4	3 1/4	12	2498
90	99	60 1/2	11 3/4	3 1/4	14	2970	99	78 1/4	15	4	14	4050
100	110	66	12 3/4	3 1/4	14	3720	110	85 3/4	16	4	14	4890

ENTASIS TAPERED

North American ENTASIS TAPERED Steel flagpoles differ from the straight tapered pole in that the tapering takes the classical curved form rather than the uniformly tapered shape. In contrast to the machine made straight tapered pole the entasis tapered pole is custom fabricated by hand. It is generally accepted that the lower third of the exposed height of the pole is straight from which point the pole is gracefully tapered in a curved manner for the upper two thirds of height. The entasis pole is the most costly of the three types fabricated but is often chosen for the monumental appearance.

specifications

The specifications listed for the straight tapered pole can be used with the following substitutions:

Paragraph (a) Substitute: — Furnish and erect where indicated on plans an entasis tapered steel flagpole. Material used for the mast and fittings is to be full weight and new. If requested by the Architect the manufacturer is to furnish mill certificates covering the steel pipe used.

Paragraph (e) Substitute the word "entasis" for "(standard) (heavy)."

Paragraph (d) Substitute: — Pipe used is to be standard weight seamless steel. The lower third of the exposed height of the pole is to be cylindrical in the entasis manner and finished in proper manner so that the finished surface of the pole is smooth and without offsets. If due to shipping restrictions, the pole is shipped in more than one section provision for field splicing is to be made. An internal sleeve is to be provided so that no bolts need be used in making a neat and secure field welded splice.

The remainder of the specifications and notes indicated for the straight tapered poles are applicable.

The foundation detail and dimensions indicated on page 5 are applicable.

dimensions

	entasis tapered					
exposed height, ft.	overall height, ft.	length of tapered section, ft.	butt diam., in.	top diam., in.	ball diam., in.	approx. weight, lbs.
25	27 1/2	8	5	2 7/8	6	380
30	33	10	5 9/16	2 7/8	6	498
35	38 1/2	12	6 5/8	3 1/2	6	716
40	44	13	7 5/8	3 1/2	8	960
45	49 1/2	15	8 5/8	3 1/2	8	1212
50	55	17	9 5/8	3 1/2	8	1661
60	66	20	10 3/4	3 1/2	8	1950
70	77	23	11 3/4	4	10	2612
80	88	27	12 3/4	4	12	4200
90	99	30	15	4	12	4932
100	110	33	16	4	14	5870

SWAGED SECTIONAL

North American SWAGED SECTIONAL steel flagpoles are fabricated of steel pipe in consecutive diameters to the top of the pole. The consecutive sizes are "telescoped", hydraulically hot swaged and welded. The joints are airtight and weathertight. Due to the close fit of the shop prepared field joint no field welding is necessary in field jointing. The pipe used is standard weight seamless and guaranteed new. The swaged pole is the least expensive of the three varieties serving the basic purpose at least cost. The full line of bases indicated on page 7 is available for the swaged steel flagpoles.

specifications

The specifications listed for the straight tapered pole can be used with the following substitutions:

Paragraph (a) Substitute: — Furnish and erect where indicated on plans a swaged steel flagpole. Material used for the mast and fittings is to be full weight and new. If requested by the architect the manufacturer is to furnish mill certificates covering the steel pipe used.

Paragraph (c) Substitute the word "swaged" for (standard) (heavy).

Paragraph (d) Substitute:—Pipe used is to be standard weight seamless steel. The pole is to be fabricated of consecutive diameters of pipe using the butt diameter indicated. The joints are to be hydraulically hot swaged where required for complete contact between outer diameter of the smaller size. All joints are to be welded to provide airtight and weathertight joints. If, due to shipping requirements, the pole is shipped in more than one section provision for field splicing is to be made. An internal sleeve is to be provided so that field welding will not be required.

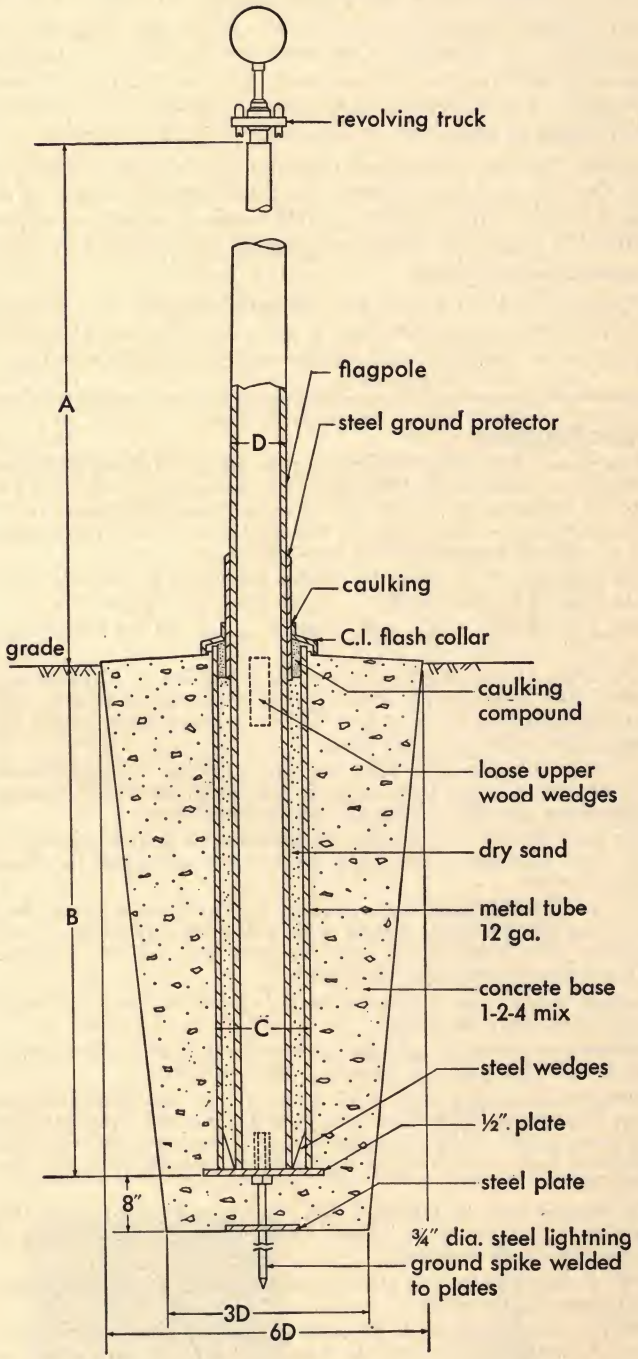
The remainder of the specifications and notes indicated for the straight tapered pole are applicable.

dimensions

swaged sectional

exposed height, ft.	overall height, ft.	butt diam., in.	top diam., in.	ball diam., in.	approx. weight, lbs.	no. of knocked down sections (subj. to change)
25	28	4½	2⅞	5	314	2
30	33	5	2⅞	6	405	2
35	38½	5 9/16	2⅞	6	520	2
40	44	5 9/16	2⅞	6	593	3
45	49½	6⅝	2⅞	6	702	3
50	55	6⅝	2⅞	8	800	3
60	66	7⅝	2⅞	8	1200	4
70	77	8⅝	2⅞	8	1600	4
80	88	10¾	2⅞	10	2410	5
90	99	11¾	2⅞	10	2840	6
100	110	12¾	2⅞	12	3600	6
125	137½	14	2⅞	14	5414	7

typical detail



A—Exposed height, feet.

B—Height below grade. 10% of "A", minimum 3'-0". (See dimensions)

C—Foundation tube diameter. "D" + 3".

D—Butt diameter, inches. Refer to tables at left.

E—Top diameter, inches. Refer to tables at left.

F—Ball diameter, inches. Refer to tables at left.

ALUMINUM FLAGPOLES

STRAIGHT TAPERED

North American STRAIGHT TAPERED ALUMINUM flagpoles have greatly increased in sales. The elimination of maintenance requirements have proved the greater initial cost worth while. Using greater butt diameters than steel—because of the lesser strength value—we can recommend aluminum for use for exposed heights up to 70 feet. Aluminum flagpoles are fabricated of seamless aluminum tubing and are machine brushed satin finished, then waxed. The painting of aluminum flagpoles is not recommended since it negates the principal advantage of aluminum by requiring periodic repainting.

North American aluminum flagpoles are cylindrically shaped at the butt and then tapered at a uniform dimension of 1″ in 5.5 feet. The material is .188 inches in thickness and is 6063-T6 aluminum alloy, heat treated and annealed to eliminate all internal strain.

Poles over 34′ in length are generally shipped in 2 sections. A field splice is provided that is self aligning, close fitting and provides a "hairline" joint when complete, without welding.

specifications

Furnish and erect where indicated in plans Straight Tapered Aluminum Flagpole as manufactured by the North American Iron & Steel Co., Inc. of Brooklyn, N. Y. The pole is to be fabricated of seamless aluminum tubing with a minimum wall thickness of .188 inches and is to be 6063-T6 aluminum alloy, heat treated.

The flagpole is to be set in the concrete foundation as shown in detail. The exposed height is to be ____ with the overall height to be ____.

The butt diameter of the pole is to be ____ and the top diameter ____.

The lower portion of the pole is to be cylindrical of diameter indicated. The upper portion of the pole is to be straight tapered using a uniform taper of 1″ in 5.5 feet. Pole is to have smooth exterior surface without offsets or visible joints.

If, due to shipping restrictions, the pole is shipped in more than one section, provision shall be made for field joint that is self aligning, close fitting and neat without field welding or bolting.

The ball shall be ____ inches in diameter. It shall be constructed of 14 ga. aluminum and mounted on a dural rod threaded for attachment to truck.

The truck shall be revolving nonfouling type with cast aluminum body revolving an aluminum spindle with a bearing containing ¼ inch stainless steel balls. Truck shall be fitted with two 4″ aluminum sheaves mounted on monel metal shafts.

Furnish two 9″ cast aluminum cleats fastened at convenient height with 5/16″ aluminum bolts.

Provide two sets of ⅜″ standard manila rope halyards with two brass, chrome plated swivel snap hooks for flag attachment.

Furnish a foundation tube of 12 gauge steel of diameter and length shown in detail. Foundation tube is to be provided with base plate lightning spike, welded centering wedges at the lower end and either centering bolts or loose wedges at the top for plumbing the pole after erection.

The flagpole is to be furnished with a brush satin waxed finish. The portion of the pole to be inserted in the foundation sleeve is to be given one coat of asphaltum.

Prior to shipment the pole shall be spirally wrapped with heavy paper and adequately protected.

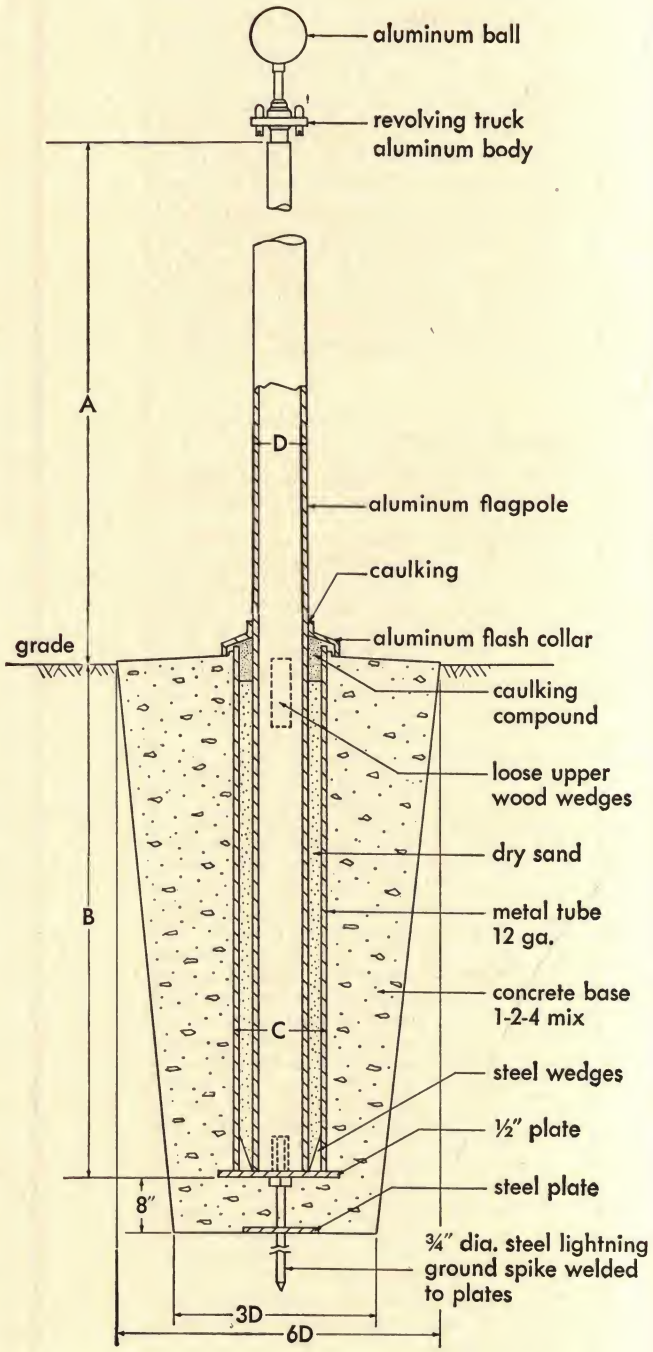
NOTE: The foundation to the right indicates an aluminum flash collar. An ornamental base may be substituted from the bases shown on Page 7. Please specify the base number after checking to be sure that the base is suitable for the butt diameter required.

dimensions

straight tapered

exposed height, ft.	overall height, ft.	length of tapered section, ft.	butt diam., in.	top diam., in.	ball diam., in.	approx. weight, lbs.
20	22	9⅔	5	3¼	6	140
25	27½	11	5½	3½	6	160
30	33	13⅔	6	3½	6	185
35	38½	19¼	7	3½	6	250
40	44	24¾	8	3½	6	300
50	55	33	10	4	8	425
60	66	33½	12	5	8	540

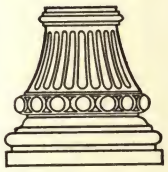
typical detail



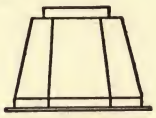
A—Exposed height, feet.
B—Height below grade. 10% of "A", minimum 3′-0″. (See dimensions)
C—Foundation tube diameter. "D" + 3″.
D—Butt diameter, inches. Refer to tables at left.
E—Top diameter, inches. Refer to tables at left.
F—Ball diameter, inches. Refer to tables at left.

BASES steel, aluminum, stainless steel, bronze

ground setting



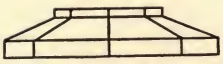
#101
1'-5" diam.; 1'-5" high
butt diam. 5" to 7⅝"



#107
1'-4" diam.; 1'-0" high
butt diam. 3" to 8⅝"



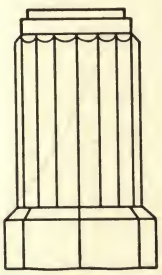
#108
1'-10½" diam.; 1'-1¾" high
butt diam. 8⅝"



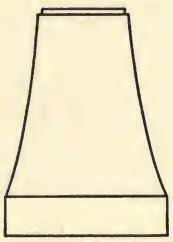
#110 octagon base
1'-7 13/16" diam.; 4⅛" high
butt diam. 4" to 6⅝"



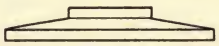
#109
2'-0" diam.; 8½" high
butt diam. 5" to 8⅝"



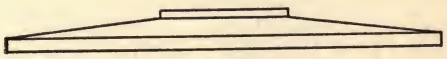
#114
1'-2½" diam.; 2'-0½" high
butt diam. 5 5/16" to 8⅝"



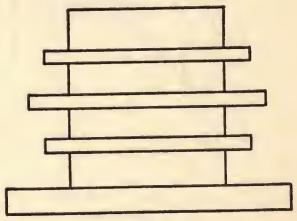
#113
1'-8" diam.; 2'-4" high
butt diam. 5 5/16" to 8⅝"



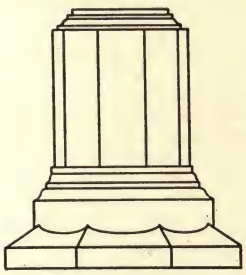
Flash Collar
Size to accommodate pole



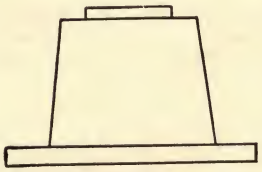
#112
3'-2" diam.; 3½" high
butt diam. 5½" to 12¾"



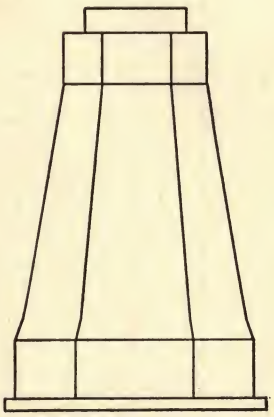
#116
2'-6" diam., 1'-5" high
butt diam. 7⅝", 8⅝" or 10¾"



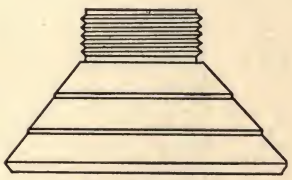
#115
2'-10" diam.; 3'-2" high
butt diam. 8⅝" to 12¾"



#111
2'-0" diam.; 1'-2½" high
butt diam. 5" to 8⅝"



#106
2'-6" diam.; 3'-0" high
butt diam. 5" to 12¾"

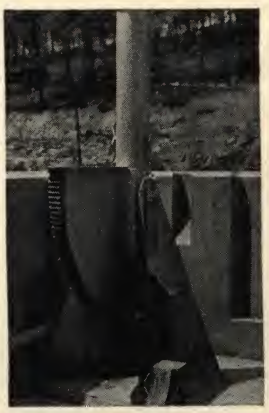


#117
2'-0" diam., 1'-5" high
butt diam. 10"

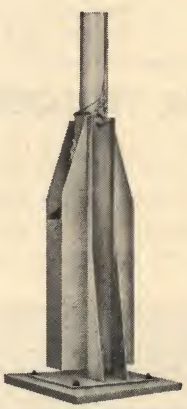
Tilting poles

Flagpoles can be made readily accessible using the Naisco carefully engineered worm gear tilting mechanism. Using a removable handle the pole can be tilted 90°. Anchor bolts and layout details for the steel base are provided with each pole of this type.

Aluminum poles can be tilted by means of counterweights. The Naisco design for the counterweight enclosure and channel supports is neat and smoothly efficient.



worm gear
tilting mechanism

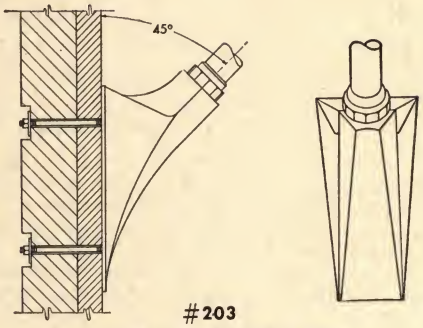


counterweight tilting
mechanism

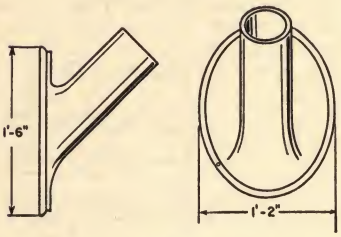
flagpoles *by naisco*

WALL MOUNTED FLAGPOLES steel, aluminum, stainless steel

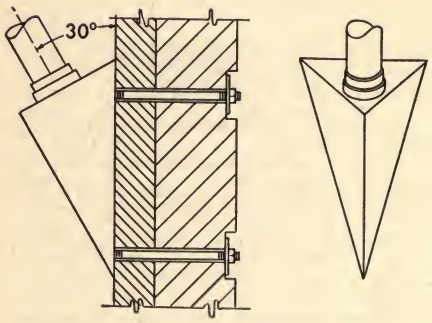
outrigger bases



#203
1'–1" wide; 1'–10¾" high
butt diam. 3½" to 5"

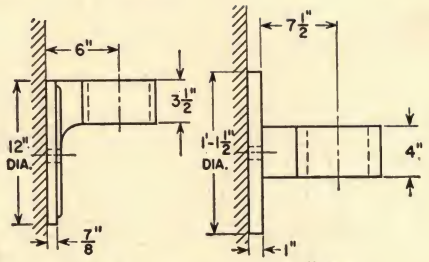


#202
1'–2" wide; 1'–6" high
butt diam. 3½" to 4½"



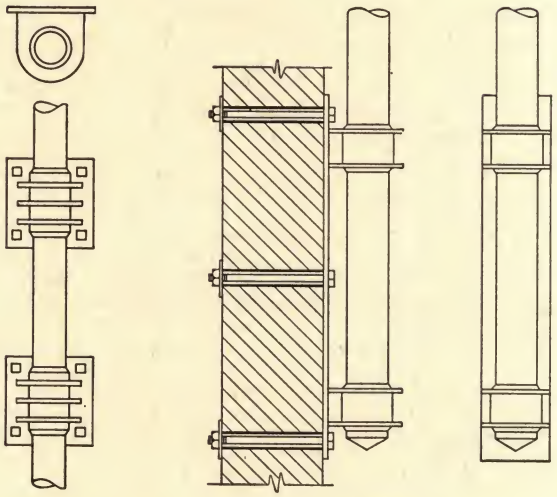
#209
1'-2" wide; 2'-0" high
butt diam. 3½" to 4½"

vertical wall mounted



#204
butt diam.
5"

#205
butt diam.
2" to 5"



#207
overall dimensions vary
with pole height
butt diam. 3½" to 6⅝"

#208
overall dimensions vary
with pole height
butt diam. 3½" to 6⅝"

Furnish and erect where shown on plans a straight tapered (steel) (aluminum) (Stainless steel) flagpole for (outrigger) (Vertical) wall mounting, complete with all fittings as made by North American Iron & Steel Co., Inc. Brooklyn, N. Y. Pole to be made of all new seamless stock. Pole to be _____ ft. total length. Butt diameter to be _____ inches. Top diameter to be _____. Pole to be mounted with (Steel) (Aluminum) (Stainless Steel) Naisco base #_____. Pole and Base to be finished with (Steel—1 shop coat red lead, after erection steel shall be painted with 2 finishing coats of outside marine white paint) (Aluminum-Satin Brush Waxed finish) (Stainless Steel—#4 Satin Finish).

OTHER PRODUCTS

We make a specialty of radio masts and ship booms of all kinds as we have had wide experience in this type of work for the United States Navy and other government bureaus. Radio masts vary in design on account of the conditions under which they are to be used. Masts may be of the tapered, swaged sectional, telescopic type, or light structural members of any special design as desired by the engineer. In addition we make all types of lampposts, stanchions, davits, etc. Further information sent on request.

NORTH AMERICAN IRON & STEEL CO., INC.

FIRST AVENUE & 58th ST., BROOKLYN 20, N. Y. PHONE GEdney 9-6247

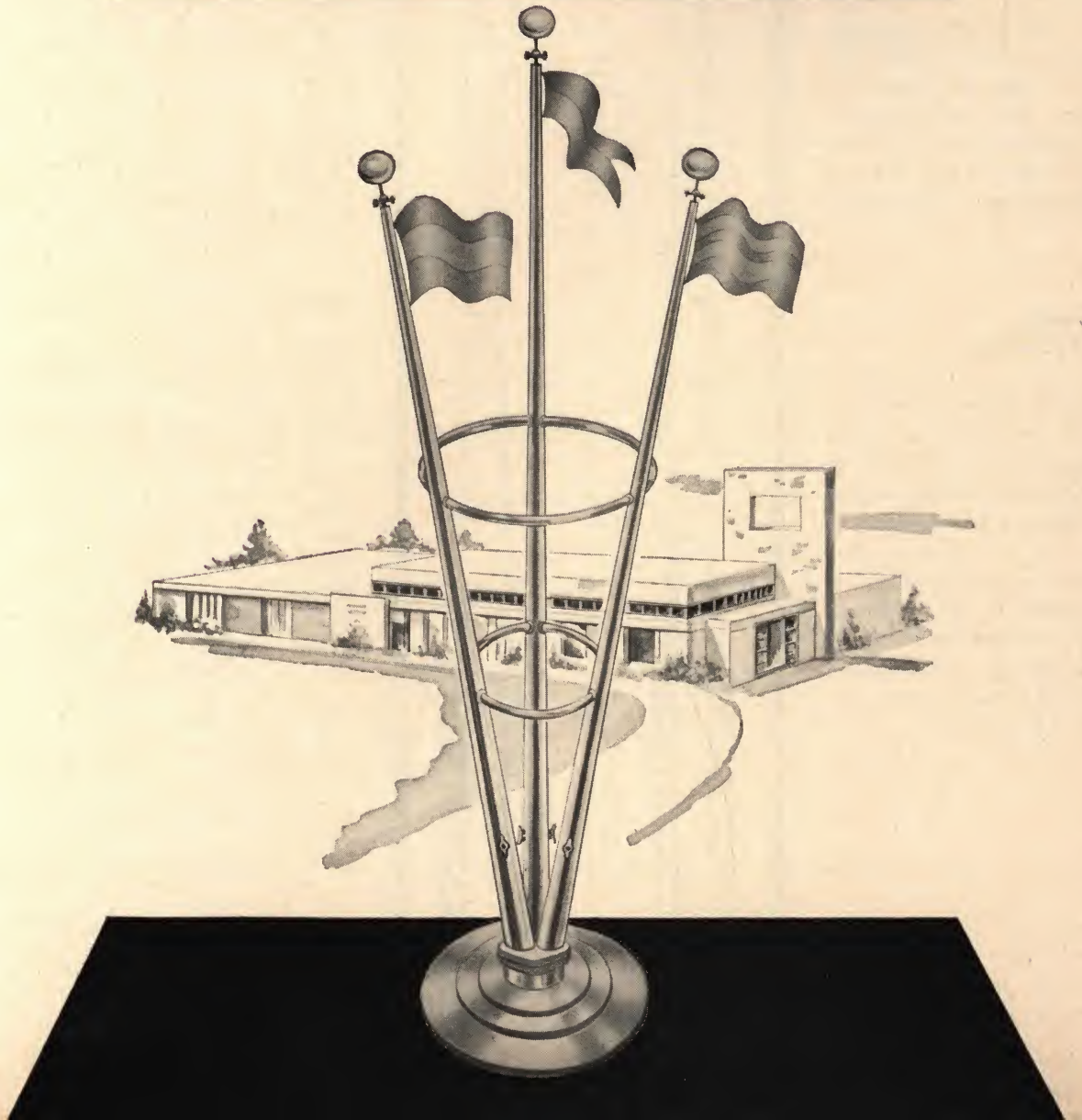
"we go anywhere"

United States Flagpole

& Equipment Company Inc.

America's Finest Pole Products

rt. 9W Marlboro, New York
ph. center 6-3371



introduction

The U. S. Flagpole and Equipment Company is a recent reorganization by the owners of the George's Flagpole Sales and Service of Marlboro, New York . . . a reorganization deemed necessary and advisable to meet the ever increasing needs of its established customers and to provide an even more efficient service for new customers.

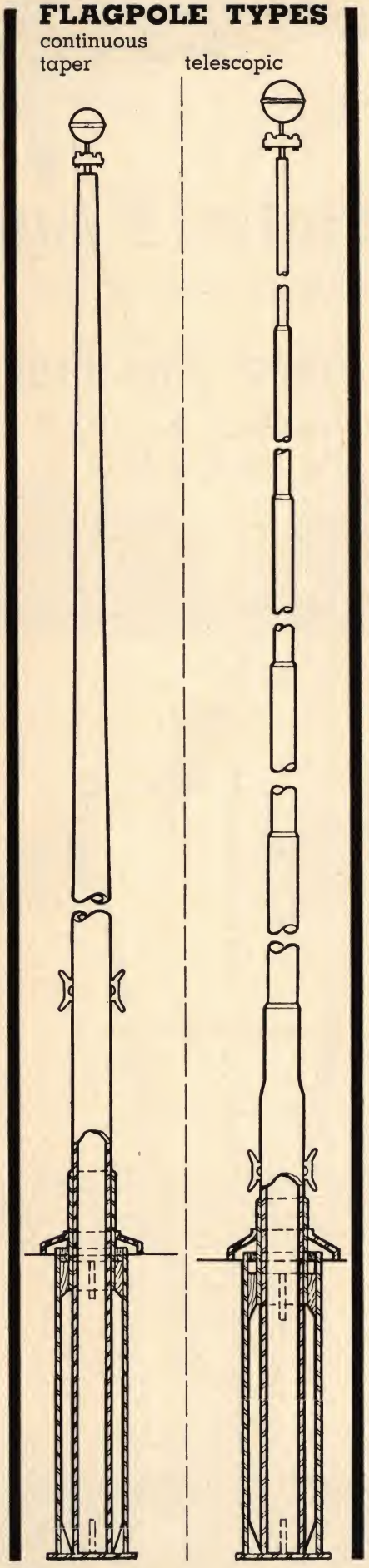
design and manufacture

All products are especially designed for today's modern needs and all material and workmanship are of the finest quality, designed to meet the highest of standards and specifications. Upon request we will be pleased to furnish sets of prints, itemized for presentation to your clients.

delivery and service

The U. S. Flagpole Company is equipped and staffed to handle any type of job in all parts of the United States and to any desired degree from design and manufacture, to final installation by its experienced crews on the date desired by the purchaser. Flagpoles installed by the U. S. Flagpole Co. will be maintained on a periodic basis according to contract if so desired.

FLAGPOLE TYPES



dimensions

continuous taper

overall length, ft.	22	27½	33	44	55	66	77	82½	88	99	110
length of tapered section, ft.	11	18	23	16½	24	31¼	38½	40	53½	60½	67¾
length of straight section, ft.	11	9½	10	27½	31	34¾	38½	37¼	34½	38½	42¼
dia., ins.											
butt	4	4½	5	5 5/16	6 5/8	7 5/8	8 5/8	9 5/8	10¾	11¾	12¾
top	2⅞	2⅞	2⅞	3¼	3¼	3¼	3¼	3¼	3¼	3¼	3¼
ball	5	5	6	8	8	8	8	10	10	10	10
total no. shipping sections	1	1	1	1	1	2	2	2	2	2	2
shipping weight, lbs. (steel)	295	415	620	940	1285	1780	2255	2605	3005	3580	4505

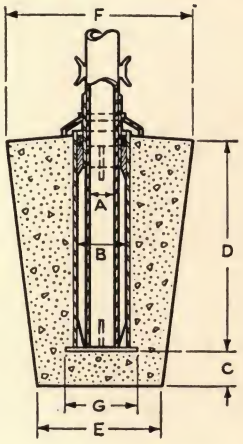
¼–⅜ wall thickness

telescopic

overall length, ft.	20	27½	33	44	55	66	77	82½	88	99	110
dia., ins.											
butt	4	4½	5	5 5/16	6 5/8	7 5/8	8 5/8	9 5/8	10¾	11¾	12¾
top	2⅞	2⅞	2⅞	2⅞	2⅞	2⅞	2⅞	2⅞	2⅞	2⅞	2⅞
ball	5	5	6	6	8	8	8	10	10	10	10
section total shipping	3 1	4 2	5 2	6 3	7 3	8 4	9 2	10 2	11 2	12 3	13 4
shipping weight, lbs.	235	325	420	625	870	1240	1630	1980	2455	3015	3655
halyard size	8	8	10	10	10	10	10	10	10	10	10

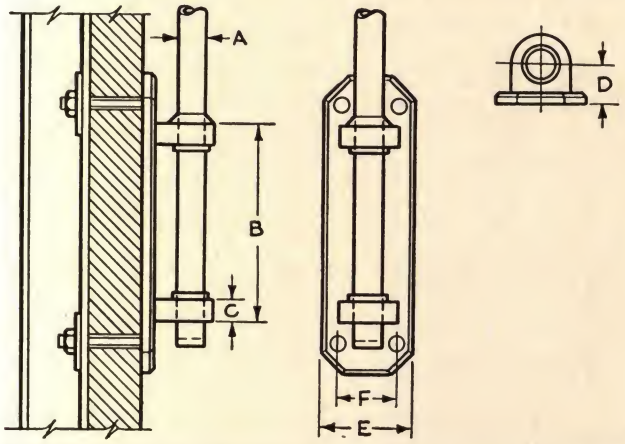
BASES

• *single pole · ground set*



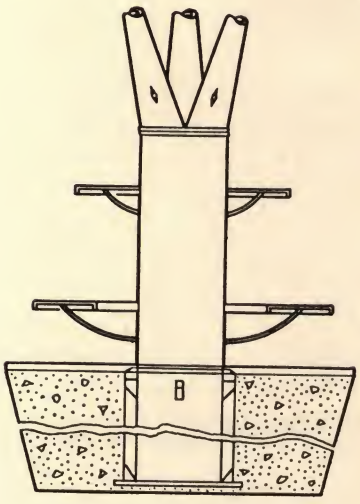
overall length, ft.	22	27½	33	38½	44	49½	55	66	71½	77	82½	88	99	110
exposed length, ft.	20	25	30	35	40	45	50	60	65	70	75	80	90	100
dim., ins.														
A	5	6	6⅝	6⅝	7⅝	7⅝	8⅝	10¾	10¾	11¾	12¾	14	15	16
B	8	10	10	10	10	10	12	14	14	14	15	18	19	20
C	6	6	6	6	9	9	10	12	12	12	12	12	12	12
D	24	30	36	36	48	48	60	72	72	84	90	96	108	120
E	20	24	24	24	30	30	30	30	30	32	34	40	42	44
F	30	36	36	36	45	45	45	45	45	48	52	60	63	66
G	10	12	12	12	12	12	16	16	14	16	17	20	21	22

• *single pole · wall mounted*



length of pole	dimensions, inches					
	A	B	C	D	E	F
15′	3″	1′-6″	3½″	3″	10½″	8½″
20′	4″	2′-0″	3½″	4″	11½″	9½″
25′	4½″	2′-6″	3½″	4½″	12″	10″
30′	5″	3′-0″	3½″	5″	12½″	10½″
35′	6″	3′-6″	3½″	6″	14″	12½″

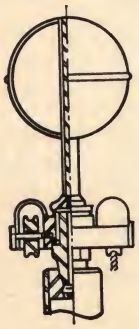
• *continuous taper · multiple pole-ground set*



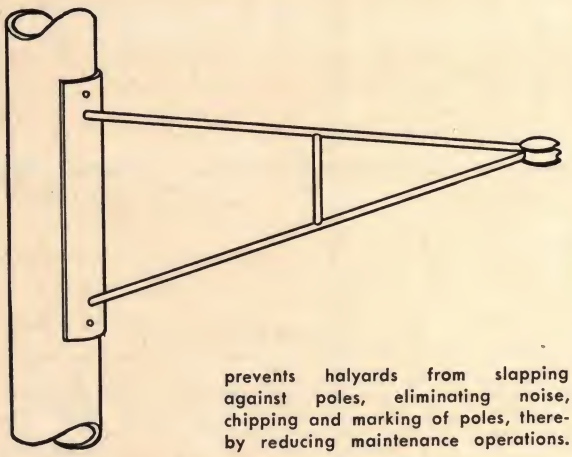
type of unit	exposed length, ft.	butt dia., ins.	top dia., ins.	ball size, ins.
equal height poles	30	5⁹⁄₁₆	3¼	4
	40	6⅝	3¼	5
	50	8⅝	3¼	6
	60	10¾	3½	7
	70	11¾	3½	8
	80	12¾	4	9
	90	14	4	10
varied height poles	20 24 28	4½	3	4
	30 35 40	5⁹⁄₁₆	3	6
	40 50 60	7⅝	3¼	8
	60 75 90	12¾	4	10

ACCESSORY DETAILS

revolving truck and ball

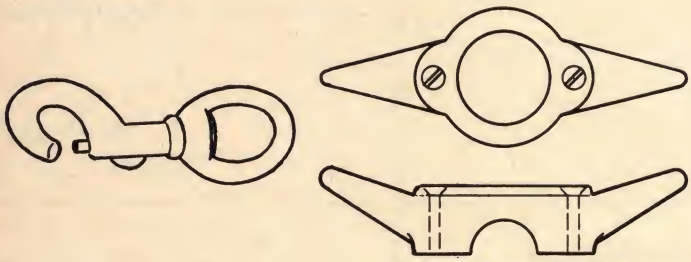


outrigger



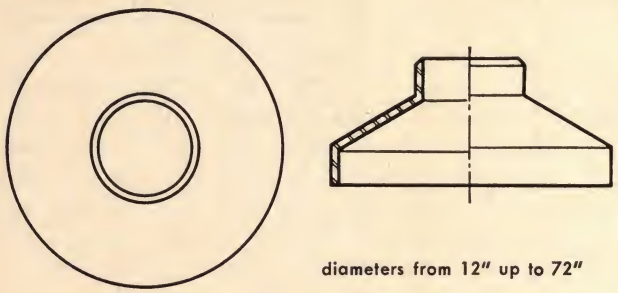
prevents halyards from slapping against poles, eliminating noise, chipping and marking of poles, thereby reducing maintenance operations.

snaphook and cleat



cleat sizes: 6", 9" and 12"

steel collar



diameters from 12" up to 72"

TYPICAL INSTALLATIONS

Fort McHenry Historic Flagstaff of "The Star Spangled Banner"—1814
National Monument and Historic Shrine
Baltimore, Md.

Dept. of Interior, National Historical Park
Stillwater, New York

Franklin Roosevelt Shrine
Hyde Park, New York

General Schuyler
Schuylerville, New York

Independence Hall
Philadelphia, Pennsylvania

Channelmaster Corp.
Ellenville, New York

J. & H. Smith Corp.
Newburgh, New York

Kingston Court House
Kingston, New York

Stillwater School
Stillwater, New York

Sparkhill School
Sparkhill, New York

U. S. Navy
90 Church Street, New York, New York

Walkill School
Walkill, New York

Seamans Estate
Esopus, New York

Hawthorne State Police Barracks
Hawthorne, New York

Mattawan State Hospital
Beacon, New York

U. S. Post Office
Torrington, Connecticut

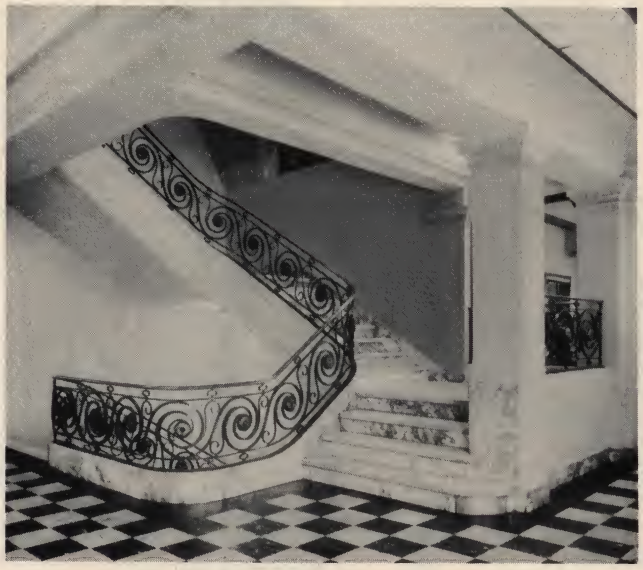
Washington Hdqtrs.
Newburgh, N. Y.

Cardinal Farley Military Academy
Rhinebeck, N. Y.

UNITED STATES FLAGPOLE & EQUIPMENT CO., INC.

Route 9W, Marlboro, New York • telephone CEnter 6-3371

6h
Ce



CENTRAL WIRE AND IRON WORKS

ESTABLISHED 1907

steel stairs • fire escapes
miscellaneous and
ornamental iron

The main stairs illustrated directly above and below* are marble on a sub-structure of steel angles and plate stringers, a wrought iron scroll railing without newels or ramps makes a continuous hand railing of the same height throughout.



*F. W. Woolworth Company
3663 Lindell Boulevard,
St. Louis, Missouri.
Architects: Thos. P. Barnett Co.
Contractors:
Wm. H & Nelson Cunliff Co.



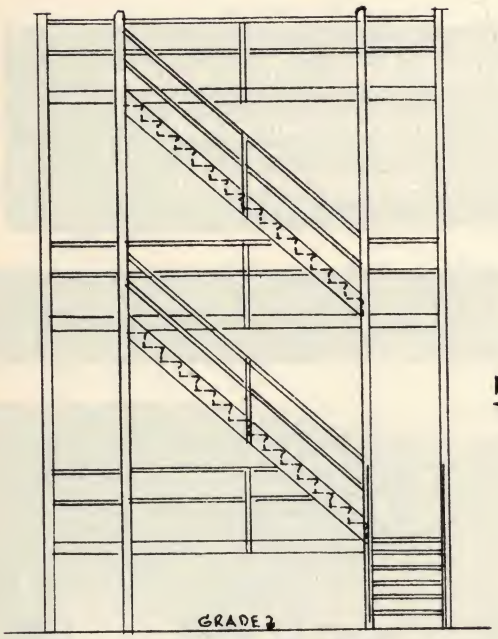
OUTSTANDING FEATURES OF OUR STAIRS:

1. All our Stairs are set up in our Plant to insure proper fitting in the Building. (see photo above) Stairs and Railings are taken down in Sections and properly marked as shown on our Shop Drawings.

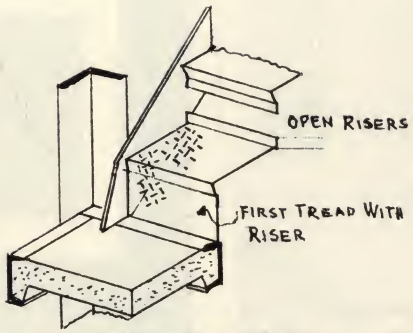
2. Stairs and Platforms are shipped in Sections for faster and easier outside Erection.

CENTRAL WIRE & IRON WORKS, INC.
744 - 752 S. 4th Street, St. Louis 2, Mo.

EXAMPLES OF DIFFERENT TYPES of STAIR CONSTRUCTION



EXTERIOR APARTMENT STAIRS

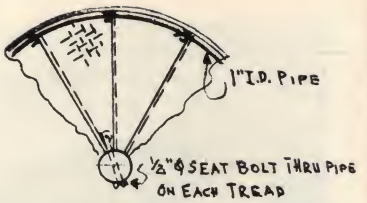


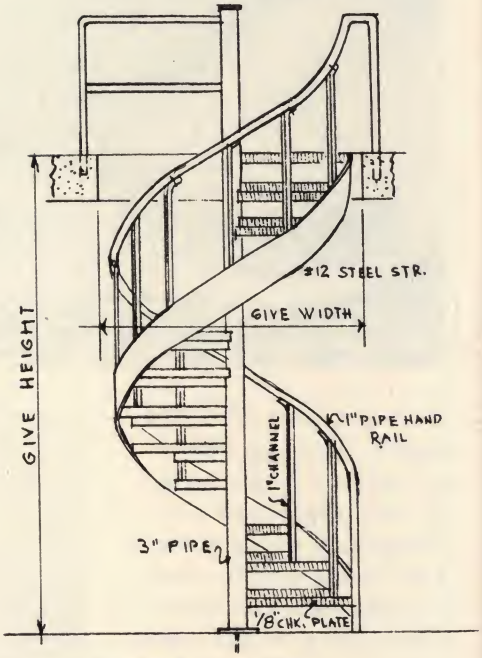
CONSTRUCTION DETAIL

PLATFORM CONCRETE SLAB IN C FRAME
TREADS ⅛" CHECK. RTS.

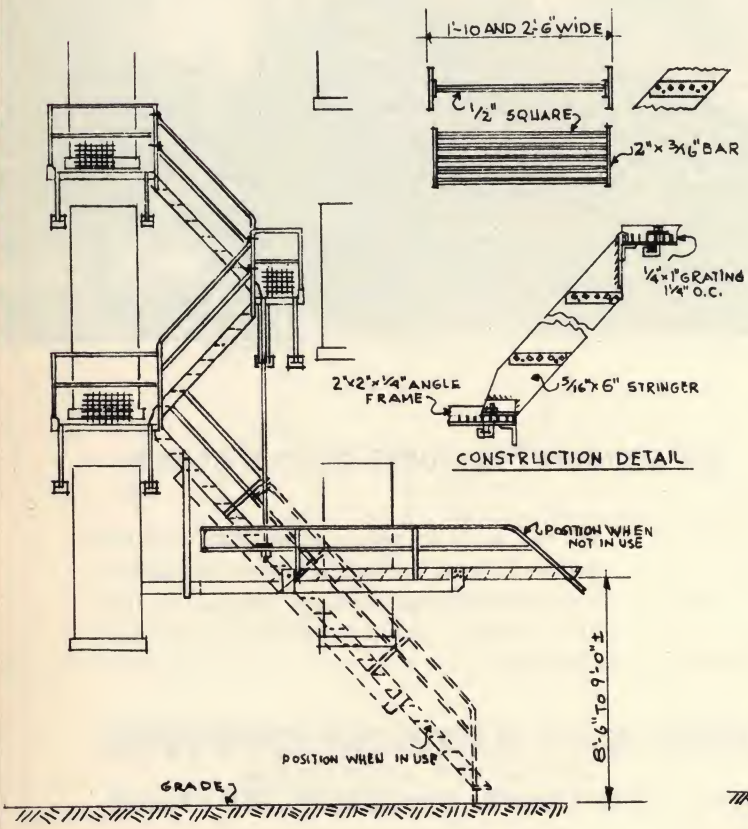
SPECIFICATIONS

Stringers ¼" x 8" flat plates
Treads ⅛" check plates
Railing 1¼" pipe
Platform framing 6" channels
Platform supports 4" x 4" x ⅜" angles

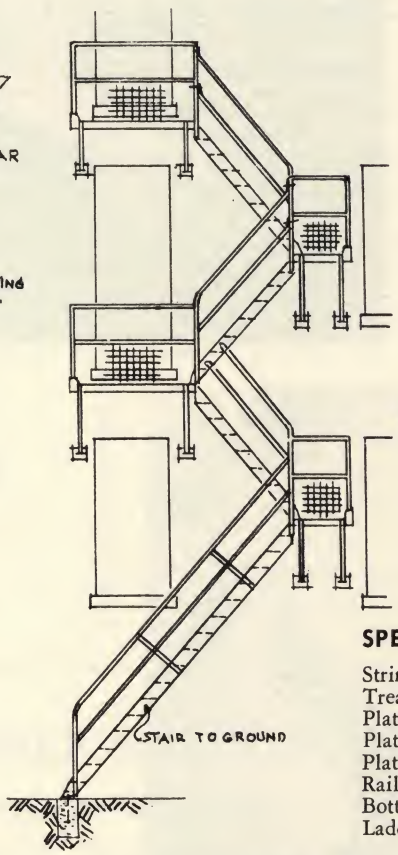




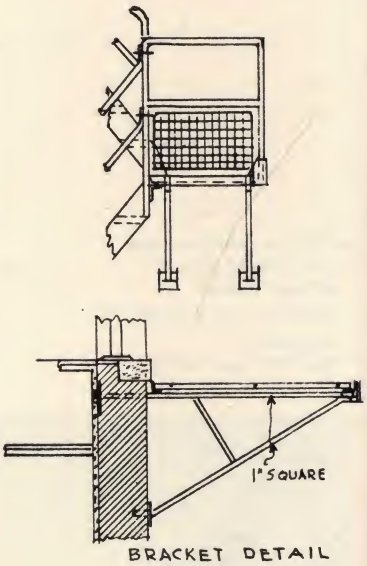
SPIRAL STAIR



EXTERIOR COUNTERBALANCED FIRE-ESCAPE



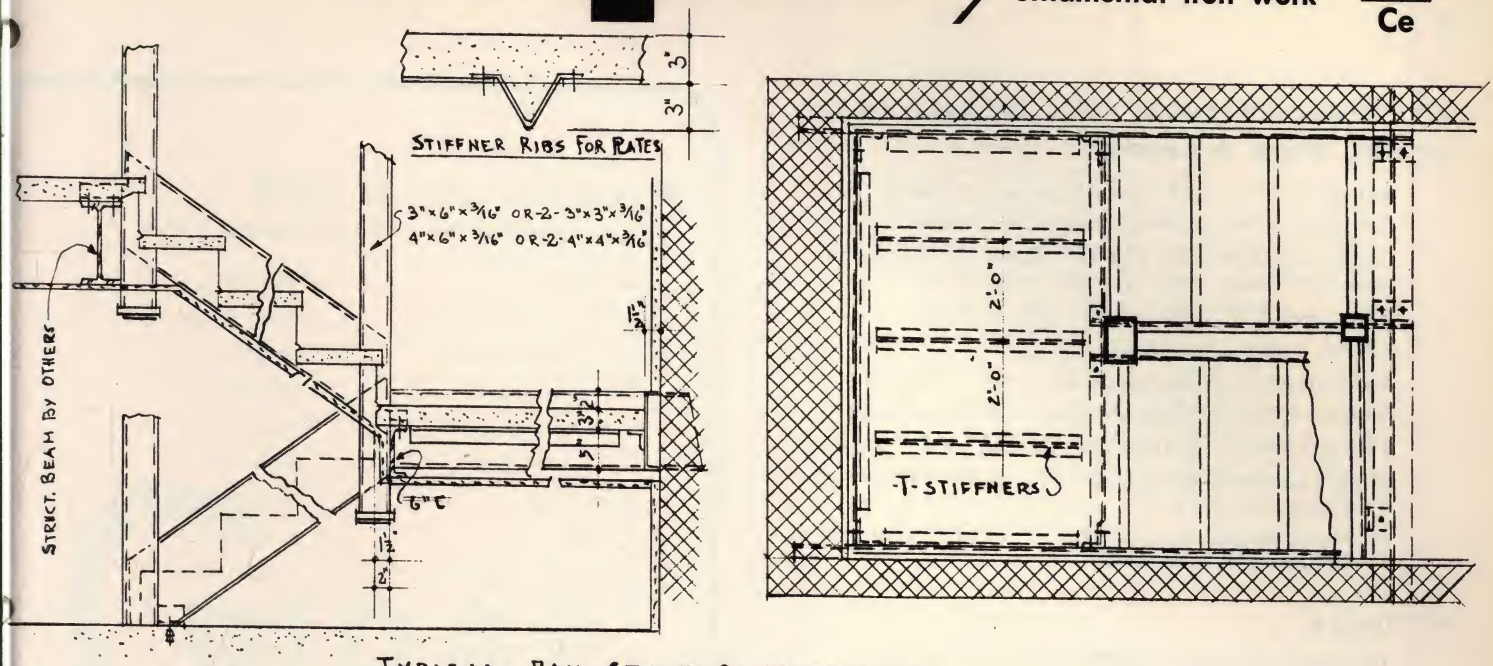
EXTERIOR FIRE ESCAPE DOWN TO GRADE



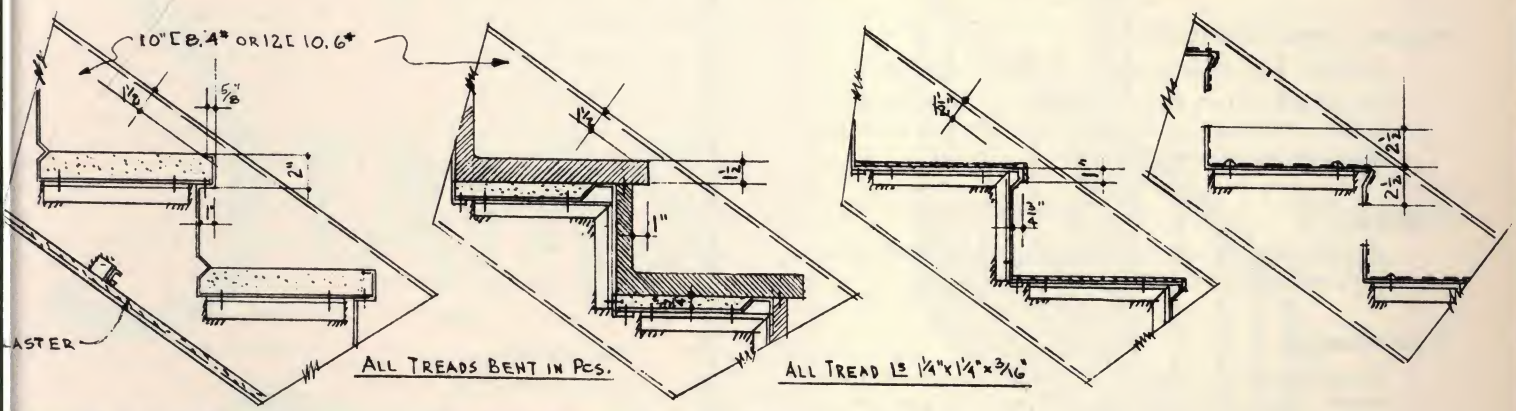
BRACKET DETAIL

SPECIFICATIONS

Stringers 5/16" x 6" flat plates
Treads ½" Sq. set on edge.
Platform frame 2" x 2" x ¼" angle
Platform grating 1" x ¼", 1¼" o.c.
Platform brackets 1" Sq. bolt thru wall
Railing 1" inside diameter pipe
Bottom stair counterbalanced
Ladder to roof where required



TYPICAL PAN STAIR CONSTRUCTION
WITH WALL BEARING (STAIRS MAY BE HUNG FROM STRUCTURAL OR CONC. BEAMS)

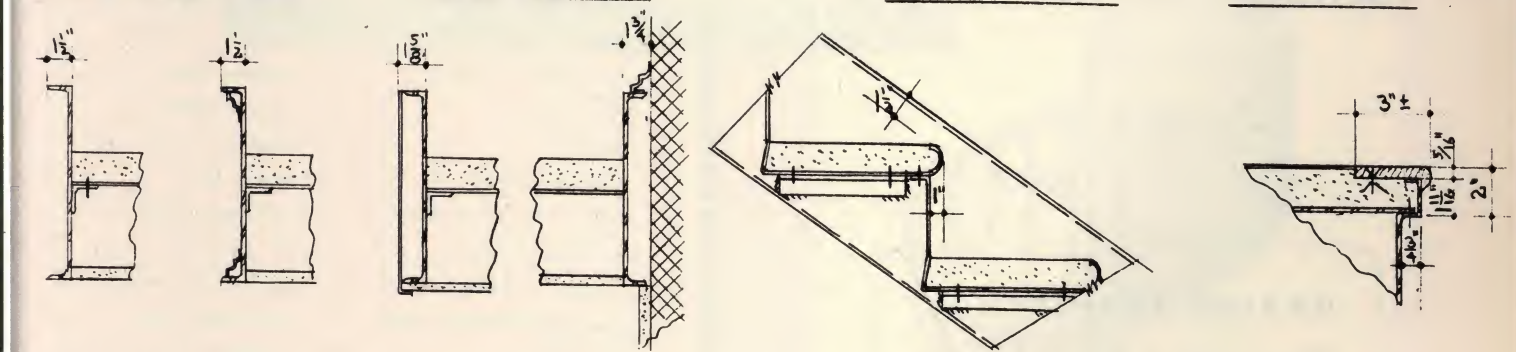


STANDARD PAN STAIR DETAIL FOR CONC. OR TERRAZZO FILL

PRE CAST TERRAZZO TREADS & RISERS ON #12 GA. SHEET

¼" RUBBER TREAD & NOSING ON #10 GA. SHEET

4-WAY SAFETY PLATE TREADS 1/8" OR 3/16" THICK



FACE STRINGERS WITH OR WITH OUT MOLDINGS

FACE STRINGER WITH 1/8" COVER PL.

WALL STRINGER WITH OR WITH OUT MOLDING

PAN STAIR WITH ROUND NOSING & RISER BENT FOR CONC.

TREAD WITH SAFETY NOSING

Typical Pan Stair is constructed to carry a Live Load of 100# per square foot.

Standard Pan Tread has Sanitary Groove on Tread Level, which will hold concrete fill in pan.

Pans for Pre-cast or Marble Treads will be bent down about ¾" for Mortar Bed, to prevent breaking of Marble or Pre-Cast Treads.

Pans for ¼" Rubber Treads are made so Stair can be used during Construction of Building, this Stair is very economical because there isn't any concrete fill required.

The 4-Way Safety Treads are mostly used on outside or Factory Stairs.

Face Stringers with cover plates will be bent about ¾" below channel to support plaster.

Safety Nosings can be furnished for all Pan Type Stairs in Ferrogrit or Alumogrit.

SPECIFICATIONS FOR STANDARD STEEL PAN STAIRS

Stringers 10″ — 8.4# Channels up to 12 Risers.
Stringers 12″ — 10.6# Channels over 12 Risers.
Treads and Platforms #12 Ga. Sheets for Stairs less than 5′-0″ wide, #10 Ga. Sheets over 5′-0″.
Stairs over 5′-0″ wide install center stringer.
Carrier angles 1¼″ x 1¼″ x 3/16″.
Stiffners under Platforms of the proper strength.
Support angles for Platform sheets welded to Stringer
Channel around Platforms 1½″ x 1½″ x 3/6″ angle.
Header Channels on Platforms 6″ — 8.2# channel for Platforms not over 7′-6″.
Header Channels on Platform 7″ — 9.8# Channels for Platforms 7′-6″ to 10′-0″.

Railings

Railings can be made with or without Newel Posts.
Railings for Stairs can be furnished in any Design or Specifications by the Architect in Steel or Aluminum.

Paint and Finish

All Steel will receive one coat of Red Oxide Paint.
For all Aluminum Rails we suggest a Satin Alumilite finish, if Railings can be constructed without welding, otherwise we recommend a satin wax finish.

Shipping

Any Job large or small will be shipped by Truck Line if possible direct to job.

Estimates

For all Inquiries contact our Office by Mail or Telephone. Our Estimating Department will give you a price within two to three Days after receipt of Inquiry.
Our price is a firm price which includes furnishing all Shop and Erection Drawings, also Shipping to Job.

Established 1907

DESIGN ASSISTANCE

When in need of Advice please feel free to consult us, as we have over fifty years of experience under the same Management in this line.

PARTIAL LIST OF JOBS Completed or Being Worked On

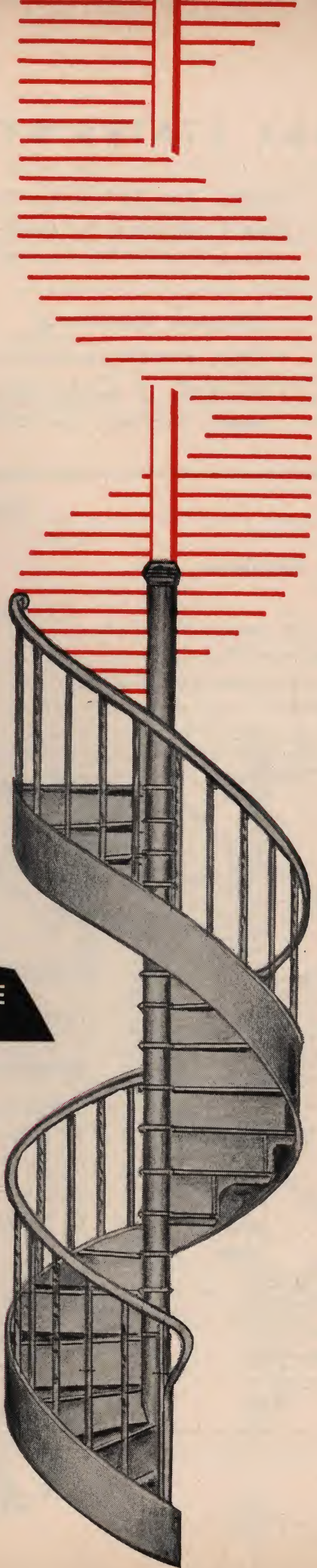
Building	Location
National Bank of Commerce	Pine Bluff, Ark.
Chapel & Fine Arts Bldg.	Batesville, Ark.
Carling Brewing Co.	Belleville, Ill.
W. M. B. D. Broadcasting Co.	Peoria, Ill.
Methodist Hospital	Peoria, Ill.
Shell Oil Co.	Wood River, Ill.
Pet Milk	Greenville, Ill.
East St. Louis High School	East St. Louis, Ill.
Illinois Bell Telephone Co.	Peoria, Ill.
St. Jerome High School	Fancy Farm, Ky.
Country Day School	St. Louis, Mo.
Clayton High School	Clayton, Mo.
Biederman Furniture	St. Louis, Mo.
Peabody Coal Co.	St. Louis, Mo.
F. W. Dodge Corp.	St. Louis, Mo.
Monsanto Chemical Office Bldg.	St. Louis County, Mo.
Alton Memorial Hospital	Alton, Ill.
Scott Air Force Base	Scott Field, Ill.
Swift & Co.	National Stock Yard, Ill.
The Procter & Gamble Mfg. Co.	St. Louis, Mo.
American T. & T. Bldg.	Lamar, Colo.
State Bank Bldg.	Winfield, Kan.
Bank and Office Bldg.	High Point. N.C.
First Nat'l Bank Bldg.	Somerset, Pa.
Brown Paper Mills	West Monroe, La.
Woodworth Dept. Store	Nashville, Tenn.
Market St. Store	Parkersburg, W. Va.
Municipal Electric Bldg.	Hamilton, Ohio
Court House	Boise City, Okla.
City Hall	Bluefield, W. Va.
First Baptist School	Mobile, Ala.
Catholic High School Gym.	Washington, Colo.
Mennonite Hospital	LaJunta, Colo.
St. Mary's Hospital	Nebraska City, Nebr.
International Harvester Bldg.	Fort Dodge, Iowa
School Bldg.	Marshalltown, Iowa
Louisiana U. Gym & Armory	Baton Rouge, La.
School for Deaf & Blind	Institute, W. Va.
Knights of Columbus	Louisville, Ky.
Union Labor Temple	Louisville, Ky.
Masonic Temple	Port Arthur, Texas

CENTRAL WIRE & IRON WORKS, INC.
744-752 South Fourth Street • ST. LOUIS 2, MISSOURI • Phone: CHestnut 1-2571

6h
Duv

SPIRAL STAIRS

by DUVINAGE



SPIRAL STAIRS BY DUVINAGE SINCE 1900

Whether it be for a unique design situation—as in the *Record House* living room pictured on Page 4—or simply for space-saving access from floor to floor in any building type, Duvinage spiral stairs offer these outstanding advantages:

- **Attractive appearance**
- **Rigid, durable construction**
- **Flexibility of design with a variety of treads, platforms and railings**
- **Custom built to specifications**
- **Low cost and prompt delivery**
- **Economy of space**

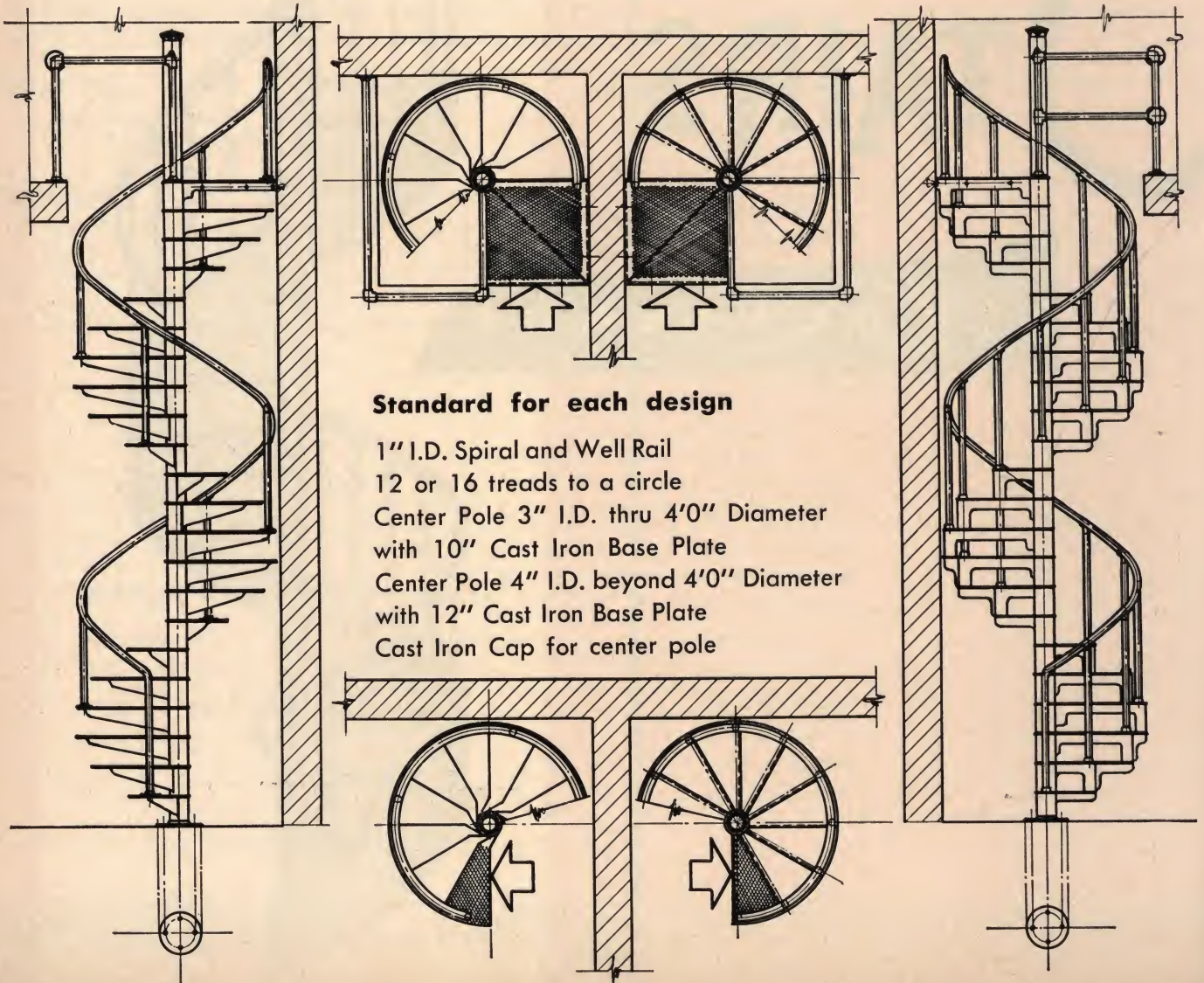
TYPICAL DRAWING

Standard Cantilever Design

Left Hand Stair Elevation (Cast Iron)
(Ascend clockwise)
Baluster each ¼ turn, Single line well rail

Standard Open Riser Design

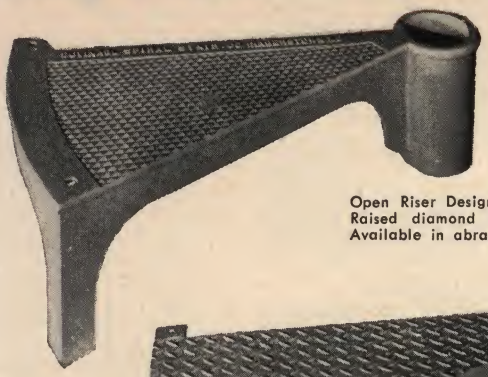
Right Hand Stair Elevation (Cast Iron)
(Ascend counter-clockwise)
Baluster each tread, Double line well rail



Standard for each design

1" I.D. Spiral and Well Rail
12 or 16 treads to a circle
Center Pole 3" I.D. thru 4'0" Diameter
with 10" Cast Iron Base Plate
Center Pole 4" I.D. beyond 4'0" Diameter
with 12" Cast Iron Base Plate
Cast Iron Cap for center pole

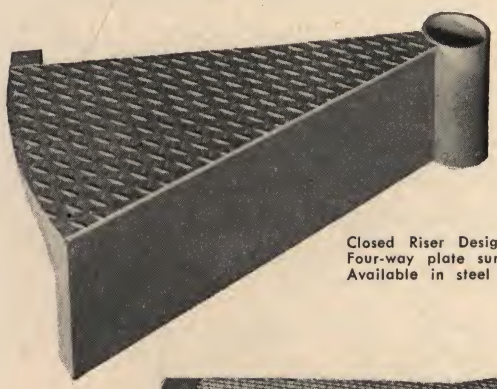
variety of treads



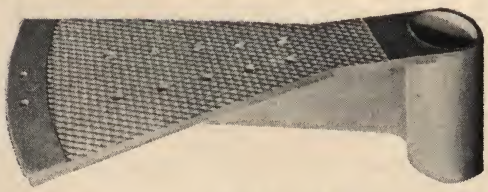
Open Riser Design—Cast Iron
Raised diamond non-slip surface
Available in abrasive surface



Open Riser Design—All Steel
Four-way plate surface
Available in steel abrasive surface



Closed Riser Design—All Steel
Four-way plate surface
Available in steel abrasive surface



Cantilever design—Cast Iron
Raised diamond non-slip surface
Available in abrasive surface



Cantilever design—All Steel
Four-way plate surface
Available in abrasive surface



Grating Tread Design

available sizes

Duvinage Spiral Stairs are available in standard sizes, ranging from 3'0" diameter to and including 8'0" diameter in increments of 6" in either cast iron or all steel, left hand or right hand. Stairs of non-standard diameter available in all steel only.
Note: Cast Iron Cantilever 5'0 maximum diameter.

special stairs

All aluminum, stairs with skirting, treads covered with wood and special design treads available to meet requirements.

balusters

Available in round and square in any size required. 1" I.D. pipe is standard.

miscellaneous

All Duvinage spiral stairs are shipped knocked down, marked for easy field assembly and prepaid to job site.
Information required for prices include Diameter of stair, height and simple sketch indicating desirable starting and landing positions and location of adjacent walls.
Proposals are submitted for each installation.

treads to a circle

By calculating the number of risers required, 12 or 16 treads to the circle, the relative positions of starting and landing can be determined, and a right or left hand stair decided upon for most convenient access.

well opening

It is desirable that well opening be 2" larger than the diameter of the stair to provide sufficient clearance for installation. Standard platforms are manufactured 1" larger than the tread radius. Well opening may be square or circular.

platforms

In addition to standard platforms, Duvinage provides the proper shaped platform suitable for irregular well openings. Standard platforms are 90 degree square and 90 degree ¼ circle.

engineering service

Available for planning any spiral stair installation.

ILLUSTRATIONS OF THE UNLIMITED USE OF DUVINAGE SPIRAL STAIRS



Record House

The Big Room Concept. *Evans Woollen, III, Architect. Mr. and Mrs. Thomas V. Parke, Owners. Location: Indianapolis, Ind.*

bank

Florida North Side Bank, Jacksonville, Fla.
Saxelbye & Powell, Architects

church

Kirk-in-the-Hills, Bloomfield Hills, Mich.
Geo. D. Mason & Co., Architects

dairy

Caparra Dairy, Inc., Santurce, Puerto Rico

dam

Sariyar Project, Ankara, Turkey

glass plant

United Nations Korea Reconstruction Agency, Seoul, Korea
Frazier-Simplex, Inc. Engineers

industrial

Medusa Portland Cement Co., Wampum, Pa.
The Osborn Engineering Co.

motion picture industry

Mark VII Ltd., Hollywood, Calif.

reservoir

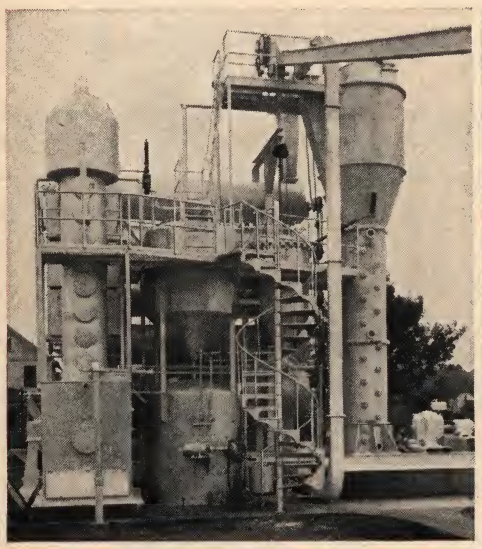
Mansfield Reservoir, Hollandsburg, Ind.
Corps of Engineers

residential

Mr. & Mrs. Noel Buckner, West Bloomfield Township, Mich.
Robert Snyder, Architect

sewage plant

City of Yakima, Washington
Stevens & Thompson, Engineers



Typical industrial installation



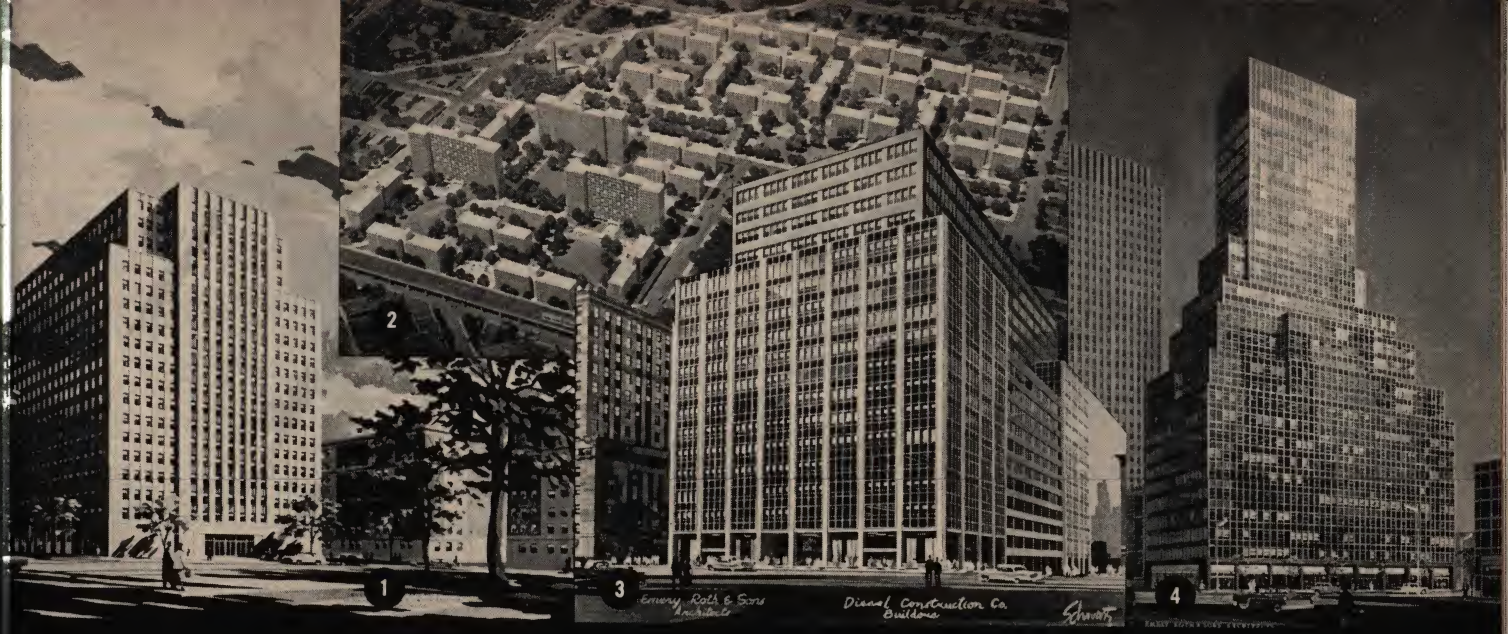
Tower installation



Typical exterior residential installation

DUVINAGE CORPORATION

P.O. Box 385 Hagerstown, Maryland REgent 3-8255



since 1902 **GROSSMAN**

miscellaneous and ornamental iron / steel stairs





current projects:

1. **INTERCHURCH CENTER, New York, N. Y.**
   General Contr: Turner Construction Co.
   Architect: Voorhees, Walker, Smith & Smith
2. **MARLBORO HOUSES, Brooklyn, N. Y.**
   Gen. Contr: Geo. F. Driscoll Co. & Moccia Const. Corp. Architect: Harrison & Abramowitz
3. **100 CHURCH STREET, New York, N. Y.**
   General Contr: Diesel Construction Co.
   Architect: Emery Roth & Sons
4. **200 EAST 42nd STREET, New York, N. Y.**
   General Contr: Diesel Construction Co.
   Architect: Emery Roth & Sons
5. **575 LEXINGTON AVE., New York, N. Y.**
   General Contr: Sam Minskoff & Sons
   Architect: Sylvan Bien and Robert Bien
6. **LOUIS HEATON PINK HOUSES, Brooklyn, N. Y.**
   General Contr: C. E. Youngdahl Co. & Psaty & Fuhrman, Inc.
   Architect: Adolph Goldberg
7. **EAST OHIO BUILDING, Cleveland, Ohio**
   General Contr: Tishman Realty & Construction Co., Cleveland, Ohio
   Architect: Emery Roth & Sons
8. **NEWS BUILDING, New York, N. Y.**
   General Contr: Turner Construction Co.
   Architect: Harrison & Abramowitz
9. **PARK WEST APARTMENTS, New York, N. Y.**
   General Contractor: Webb & Knapp Construction Co.
   Architect: S. J. Kessler & Sons

GROSSMAN STEEL STAIR CORPORATION

main office and factory: 1190 Longwood Avenue at Tiffany Street, New York 59, New York

steel stairs, miscellaneous and ornamental iron

STEEL STAIRS SINCE 1902

On the basis of patents issued to our founder, in 1902 we built our first flight of pressed steel stairs, our organization then being organized for the purpose of manufacturing steel stairs exclusively. Within five years of that time, steel stairs had replaced cast iron in almost all new buildings in Greater New York and soon thereafter they were in general use throughout the country. In the last 56 years, we have built almost one million flights of stairs.

CONSTRUCTION

Our stairs are built to Architects specifications. They are built as a steel structure is built, with rivets, bolts and strong welds, in accordance with sound engineering practice. Our patents are not for unique methods of assembling stairs, but for the basic machinery and methods of building strong stairs cheaply.

TESTS

In 1908 Prof. Ira Woolson of Columbia University Testing Laboratories tested our stairs and found that they will bear a live load of 400 pounds per square foot with no permanent deflection.

APPROVAL

Our stairs are approved by the Department of Housing and Buildings of the City of New York and have been erected with the approval of local authorities in practically all communities throughout the eastern part of the United States.

NOTES FOR SPECIFICATIONS

The design and layout of steel stairs naturally varies with the conditions under which they are to be used. In the last analysis the choice of specifications lies with the Architect. As an aid to the selection of components of proper strength we present herewith pictorially and in these specifications a variety of such component parts.

stringers

Except in unusual situations stair stringers are made in channel form, the weight of the stair and of the live load determining the size of the channel. The lightest available section is J & L channel weighing 6.5# per lineal foot. This section is suitable for light apartment construction. The J & L channel weighing 8.4# per foot is suitable for almost all types of construction except where the span of the stairs is extraordinarily large or the weights to be carried are extremely heavy. For large and heavy stairs, structural channels of a weight of 15.3# per lineal foot are used.

In general, face stringers are made of the same sections. When it is desired to ornament the stair particularly an applied moulding is secured to the top and bottom flange of the stringer. The practice of returning such mouldings vertically at each end is extremely costly.

carriers

Carriers, also known as horses and pitch blocks, for ordinary stairs, are made of 1¼ x 1¼ x ⅛" angles riveted to the stringer with ¼" rivets. Carriers should be made in one piece and should be properly mitred for neat appearance. If greater strength is required, carriers may be of 1¼ x 1¼ x 3/16" angles.

risers and undertreads

Risers and undertreads for apartment house stairs may be of No. 14 USS gauge. More substantial stairs require No. 12 gauge risers and stairs of unusual width or usage may take ⅛" or No. 10 gauge steel. Risers can be prepared for a variety of finishes, the most common being for cement fill or marble or slate treads.

platforms

Platforms are normally made of the same gauge steel used for risers and undertreads. They may be re-enforced with integral ribs bent therein or with angles or T's secured to the underside thereof.

newels

Except in the circumstances that a particular ornamental design for newels is required, the most satisfactory form is square bent steel tubing with sanitary flush welded caps and drops. Newels may be of 3" or 3½" or 4" square as required or they may be 3" x 6". Wall thickness may be No. 10 gauge or 3/16".

railing

There is no limit to the degree of ornamentation which may be applied to the design of railing. The simplest and most satisfactory type is made of ½" square bars spaced 5" on centers with 1 x ⅜" channels top and bottom, the top channel being either punched to receive a wooden handrail to be supplied by others, or surmounted by 1¼" pipe handrail. Variances of this is to use ⅝" square bars, or to reduce the centers to 4½", or to use alternate twisted bars, or to use ornamental panels.

scissor stairs • concrete stairs

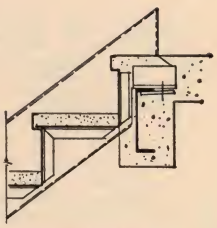
We have been very successful in making stairs in the nature of permanent steel forms for concrete stairs. In this case stringers and risers only are used. Concrete is then cast in wood forms secured to the underside of the stringer up to the level of the top of the riser. This method of construction is more economical than for concrete stairs and is more accurate with reference to riser heights, etc. Also, a riser with a neat nosing is easily secured.

plaster soffits

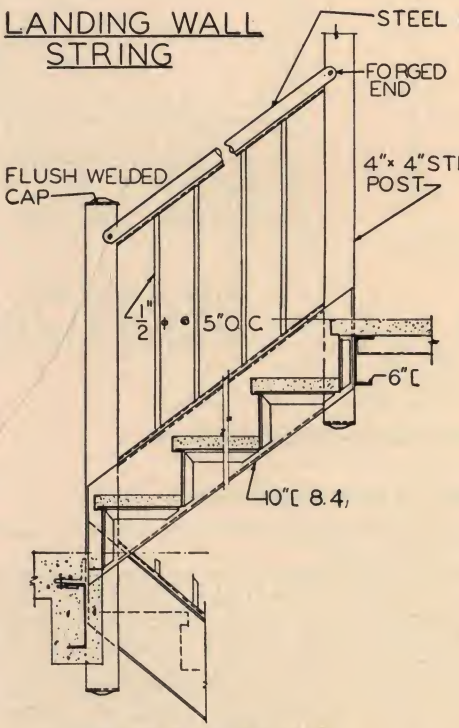
If desired small clips with holes therein may be welded at equal spaces on wall and face stringer so that wire lath may be placed thereon for purpose of plastering the underside of the stair.

While we specialize in steel stairs, we also manufacture and erect all items of ornamental and miscellaneous iron work

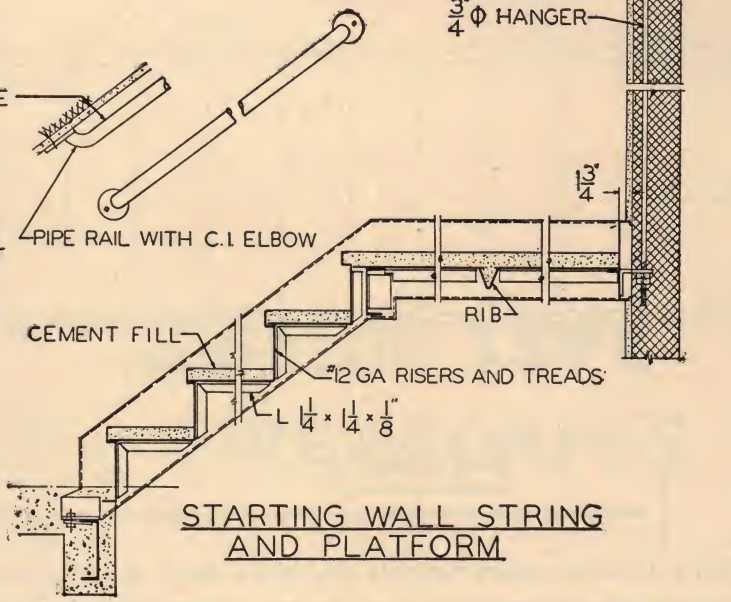
STEEL STAIRS SINCE 1902



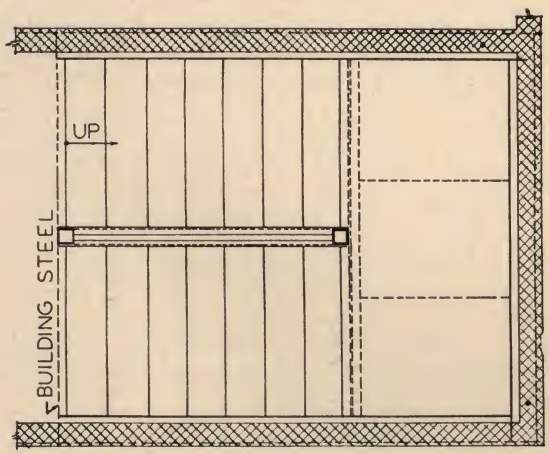
LANDING WALL STRING



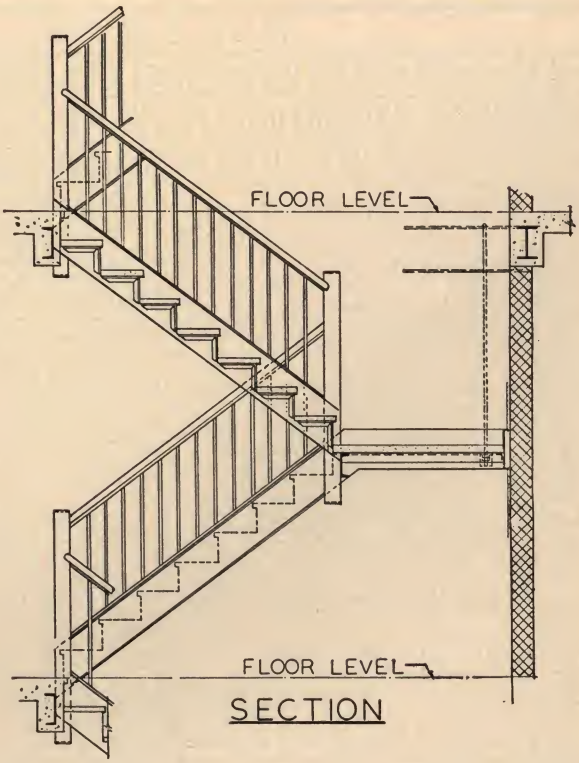
FACE STRING



STARTING WALL STRING AND PLATFORM



PLAN

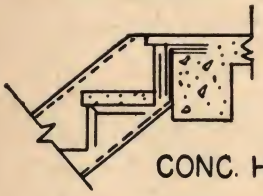


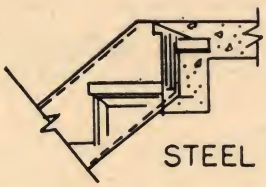
SECTION

THIS LAYOUT IS GENERALLY SUITABLE FOR APARTMENTS, OFFICE, FACTORY OR SIMILAR BUILDING WHERE A CLEAN ECONOMICAL STAIR IS REQUIRED

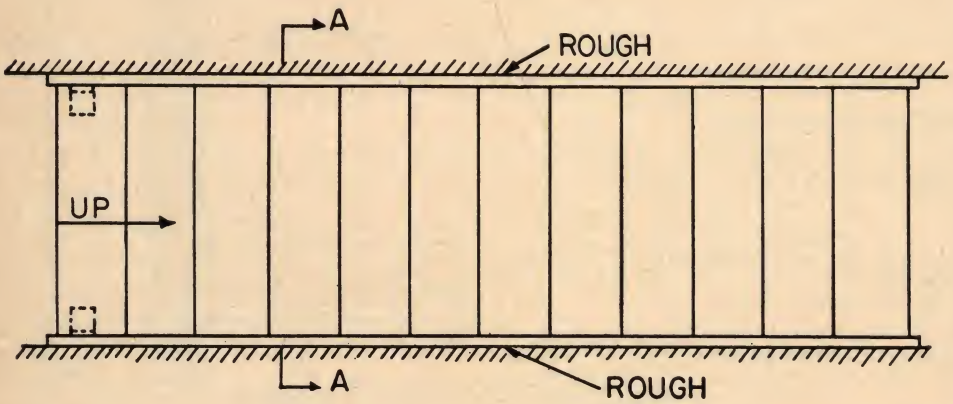
GROSSMAN STEEL STAIR CORP. 1190 LONGWOOD AVENUE BRONX 59, NEW YORK	STANDARD STAIR DETAILS	OFFICE AND APARTMENT BUILDINGS

stairs suitable for low cost housing—type RW



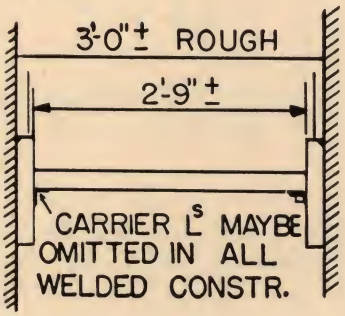


RISER & SUB-TREAD #14 GA. BENT IN ONE PIECE



PLAN

STRINGS - 12"-3/16" PL. BENT TO A 10" [, OR 10" [6.5



SECTION

Table showing story heights derived from a specific number of risers and riser heights.

RISER SCHEDULE																														
1	6	6 1/16	6 1/8	6 3/16	6 1/4	6 5/16	6 3/8	6 7/16	6 1/2	6 9/16	6 5/8	6 11/16	6 3/4	6 13/16	6 7/8	6 15/16	7	7 1/16	7 1/8	7 3/16	7 1/4	7 5/16	7 3/8	7 7/16	7 1/2	7 9/16	7 5/8	7 11/16	7 3/4	7 13/16
2	1-0	1-0 1/8	1-0 1/4	1-0 3/8	1-0 1/2	1-0 5/8	1-0 3/4	1-0 7/8	1-1	1-1 1/8	1-1 1/4	1-1 3/8	1-1 1/2	1-1 5/8	1-1 3/4	1-1 7/8	1-2	1-2 1/8	1-2 1/4	1-2 3/8	1-2 1/2	1-2 5/8	1-2 3/4	1-2 7/8	1-3	1-3 1/8	1-3 1/4	1-3 3/8	1-3 1/2	1-3 5/8
3	1-6	1-6 3/16	1-6 3/8	1-6 9/16	1-6 3/4	1-6 15/16	1-7 1/8	1-7 5/16	1-7 1/2	1-7 11/16	1-7 7/8	1-8 1/16	1-8 1/4	1-8 7/16	1-8 5/8	1-8 13/16	1-9	1-9 3/16	1-9 3/8	1-9 5/16	1-9 3/4	1-9 15/16	1-10 1/8	1-10 5/16	1-10 1/2	1-10 11/16	1-10 7/8	1-11 1/16	1-11 1/4	1-11 7/16
4	2-0	2-0 1/4	2-0 1/2	2-0 3/4	2-1	2-1 1/4	2-1 1/2	2-1 3/4	2-2	2-2 1/4	2-2 1/2	2-2 3/4	2-3	2-3 1/4	2-3 1/2	2-3 3/4	2-4	2-4 1/4	2-4 1/2	2-4 3/4	2-5	2-5 1/4	2-5 1/2	2-5 3/4	2-6	2-6 1/4	2-6 1/2	2-6 3/4	2-7	2-7 1/4
5	2-6	2-6 5/16	2-6 5/8	2-6 15/16	2-7 1/4	2-7 9/16	2-7 7/8	2-8 3/16	2-8 1/2	2-8 13/16	2-9 1/8	2-9 7/16	2-9 3/4	2-10 1/16	2-10 3/8	2-10 11/16	2-11	2-11 5/16	2-11 5/8	2-11 15/16	3-0 1/4	3-0 9/16	3-0 7/8	3-1 3/16	3-1 1/2	3-1 13/16	3-2 1/8	3-2 7/16	3-2 3/4	3-3 1/16
6	3-0	3-0 3/8	3-0 3/4	3-1 1/8	3-1 1/2	3-1 7/8	3-2 1/4	3-2 5/8	3-3	3-3 3/8	3-3 3/8	3-4 1/8	3-4 1/2	3-4 7/8	3-5 1/4	3-5 5/8	3-6	3-6 3/8	3-6 3/4	3-7 1/8	3-7 1/2	3-7 7/8	3-8 1/4	3-8 5/8	3-9	3-9 3/8	3-9 3/4	3-10 1/8	3-10 1/2	3-10 7/8
7	3-6	3-6 7/16	3-6 7/8	3-7 5/16	3-7 3/4	3-8 3/16	3-8 5/8	3-9 1/16	3-9 1/2	3-9 15/16	3-10 3/8	3-10 13/16	3-11 1/4	3-11 11/16	4-0 1/8	4-0 9/16	4-1	4-1 7/16	4-1 7/8	4-2 5/16	4-2 3/4	4-3 3/16	4-3 5/8	4-4 1/16	4-4 1/2	4-4 15/16	4-5 3/8	4-5 13/16	4-6 1/4	4-6 11/16
8	4-0	4-0 1/2	4-1	4-1 1/2	4-2	4-2 1/2	4-3	4-3 1/2	4-4	4-4 1/2	4-5	4-5 1/2	4-6	4-6 1/2	4-7	4-7 1/2	4-8	4-8 1/2	4-9	4-9 1/2	4-10	4-10 1/2	4-11	4-11 1/2	5-0	5-0 1/2	5-1	5-1 1/2	5-2	5-2 1/2
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10	5-0	5-0 5/8	5-1 1/4	5-1 7/8	5-2 1/2	5-3 1/8	5-3 3/4	5-4 3/8	5-5	5-5 5/8	5-6 1/4	5-6 7/8	5-7 1/2	5-8 1/8	5-8 3/4	5-9 3/8	5-10	5-10 5/8	5-11 1/4	5-11 7/8	6-0 1/2	6-1 1/8	6-1 3/4	6-2 3/8	6-3	6-3 5/8	6-4 1/4	6-4 7/8	6-5 1/2	6-6 1/8
11	5-6	5-6 11/16	5-7 3/8	5-8 1/16	5-8 3/4	5-9 7/16	5-10 1/8	5-10 13/16	5-11 1/2	6-0 3/16	6-0 7/8	6-1 9/16	6-2 1/4	6-2 15/16	6-3 5/8	6-4 5/16	6-5	6-5 11/16	6-6 3/8	6-7 1/16	6-7 3/4	6-8 7/16	6-9 1/8	6-9 13/16	6-10 1/2	6-11 3/16	6-11 7/8	7-0 9/16	7-1 1/4	7-1 15/16
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15	7-5	7-6 15/16	7-7 7/8	7-8 13/16	7-9 3/4	7-10 11/16	7-11 5/8	8-0 9/16	8-1 1/2	8-2 7/16	8-3 3/8	8-4 5/16	8-5 1/4	8-6 3/16	8-7 1/8	8-8 1/16	8-9	8-9 15/16	8-10 7/8	8-11 13/16	9-0 3/4	9-1 11/16	9-2 5/8	9-3 9/16	9-4 1/2	9-5 7/16	9-6 3/8	9-7 5/16	9-8 1/4	9-9 3/16
16	8-0	8-1	8-2	8-3	8-4	8-5	8-6	8-7	8-8	8-9	8-10	8-11	9-0	9-1	9-2	9-3	9-4	9-5	9-6	9-7	9-8	9-9	9-10	9-11	10-0	10-1	10-2	10-3	10-4	10-5
17	8-5	8-7 1/16	8-8 1/8	8-9 3/16	8-10 1/4	8-11 5/16	9-0 3/8	9-1 7/16	9-2 1/2	9-3 9/16	9-4 5/8	9-5 11/16	9-6 3/4	9-7 13/16	9-8 7/8	9-9 15/16	9-11	10-0 1/16	10-1 1/8	10-2 3/16	10-3 1/4	10-4 5/16	10-5 3/8	10-6 7/16	10-7 1/2	10-8 9/16	10-9 5/8	10-10 11/16	10-11 3/4	11-0 13/16
18	9-0	9-1 1/8	9-2 1/4	9-3 3/8	9-4 1/2	9-5 5/8	9-6 3/4	9-7 7/8	9-9	9-10 1/8	9-11 1/4	10-0 3/8	10-1 1/2	10-2 5/8	10-3 3/4	10-4 7/8	10-6	10-7 1/8	10-8 1/4	10-9 3/8	10-10 1/2	10-11 5/8	11-0 3/4	11-1 7/8	11-3	11-4 1/8	11-5 1/4	11-6 3/8	11-7 1/2	11-8 5/8

GROSSMAN STEEL STAIR CORPORATION

Main Office and Factory: 1190 Longwood Avenue at Tiffany Street, New York 59, N. Y.

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POTTER

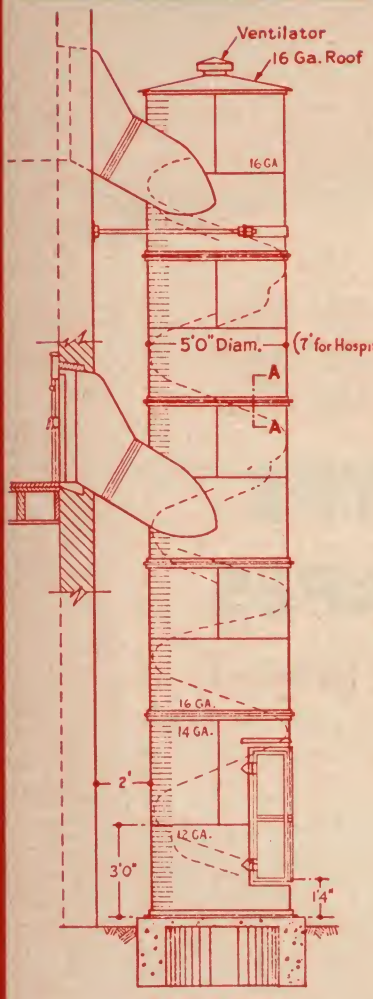
SLIDE TYPE FIRE ESCAPES

tubular • spiral

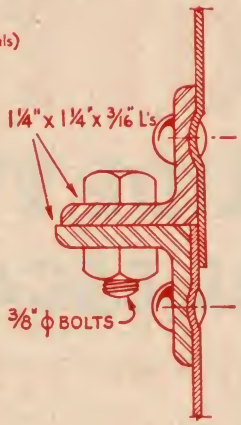
aluminum • steel

POTTER FIRE ESCAPE CO.
CHICAGO 45, ILLINOIS

POTTER Spiral Slide Fire Escapes

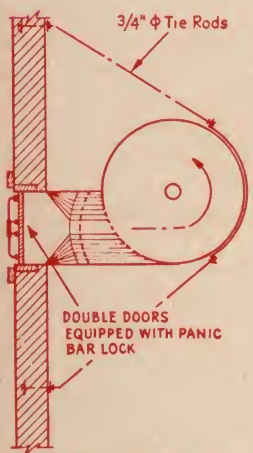


ELEVATION



Half-Size Section A-A





ENTRANCE PLAN

Spirals may run clockwise or counter-clockwise

See also details on page 3.

*Interior Types

Both STANDARD and HOSPITAL types are built for interior of the building. See Page 4 for details.

SPECIFICATIONS—Exterior Types*

Note—Specify under Specialties; not under Structural or Ornamental Iron. All specifications subject to change without notice.

Standard Type—For general use

The fire escape shall be the POTTER Spiral Escape made by POTTER FIRE ESCAPE COMPANY, Chicago 45, Illinois.

Spiral Slide—Shall be fabricated of sheet metal, properly banked and secured to the center core and the outer housing. Slide shall be made in overlapping sections so as to present no crevices or cracks. All rivets shall be recessed and edges of sheets ground smooth.

Center Core—Shall be composed of a 3 in. I. D. pipe.

Roof—Shall be conical in shape and project 3 inches beyond the cylinder. A ventilator shall be provided at the center.

Assembled Sections—Escape shall be manufactured in sections about 7 ft. high with an angle ring at the top and bottom of each section.

Foundation—The escape shall rest upon an octagonal concrete foundation, as shown on plans, not less than 18 in. deep.

Entrance Door Assembly—Entrance on inside of building shall be closed with clear ponderosa pine, paneled double doors, 15 in. wide by 42 in. high, weatherstripped, equipped with panic bolt hardware operated with push bars on either door; doors to swing into escape. A ¾ in. diameter horizontal swing bar shall be securely attached to the frame near the top of the entrance.

Exit Doors—Exit doors at the bottom of the escape shall be constructed of two leaves opening outward and provided with brass automatic inside latch and touch plate operated by the pressure of the user's feet.

Bracing—One brace shall be provided for two or three story buildings, and one brace for each additional two stories of higher buildings.

Approval—The fire escape construction shall have been tested, approved and be listed as standard by the Underwriters' Laboratories.

Hospital Type—Designed for patients on mattresses

Same as STANDARD TYPE except for following changes:

Material—Change to ..... 7 ft. in diameter .....

Entrance Door Assembly—Change to ..... double doors, 20 in. wide, 42 in. high, ...

Foundation—The escape shall rest upon an octagonal concrete foundation, as shown on plans, not less than 18 in. deep.

Exit Doors—Exit doors at the bottom of the escape shall be constructed of two leaves, 42 in. high, 22 in. wide, and shall open readily from the inside by contact of the mattress or a person's feet. A handle shall be provided so that doors may be opened from the outside.

Ramp—An open ramp constructed of No. 16 gauge galvanized sheet steel, 7 ft. long, 45 in. wide, shall be fastened to the escape with bolts just below and outside exit.

MATERIALS—Steel

Housing shall be No. 12 U. S. standard gauge galvanized sheet steel for approximately the lower 3 feet; the next 3 feet of No. 14 gauge; the remainder of No. 16 gauge.
Spiral Slide shall be No. 16 gauge galvanized sheet steel.
Base angle shall be 2¼"x2¼"x¼" galvanized steel.
Section angles shall be 1¼"x1¼"x3/16" galvanized steel.

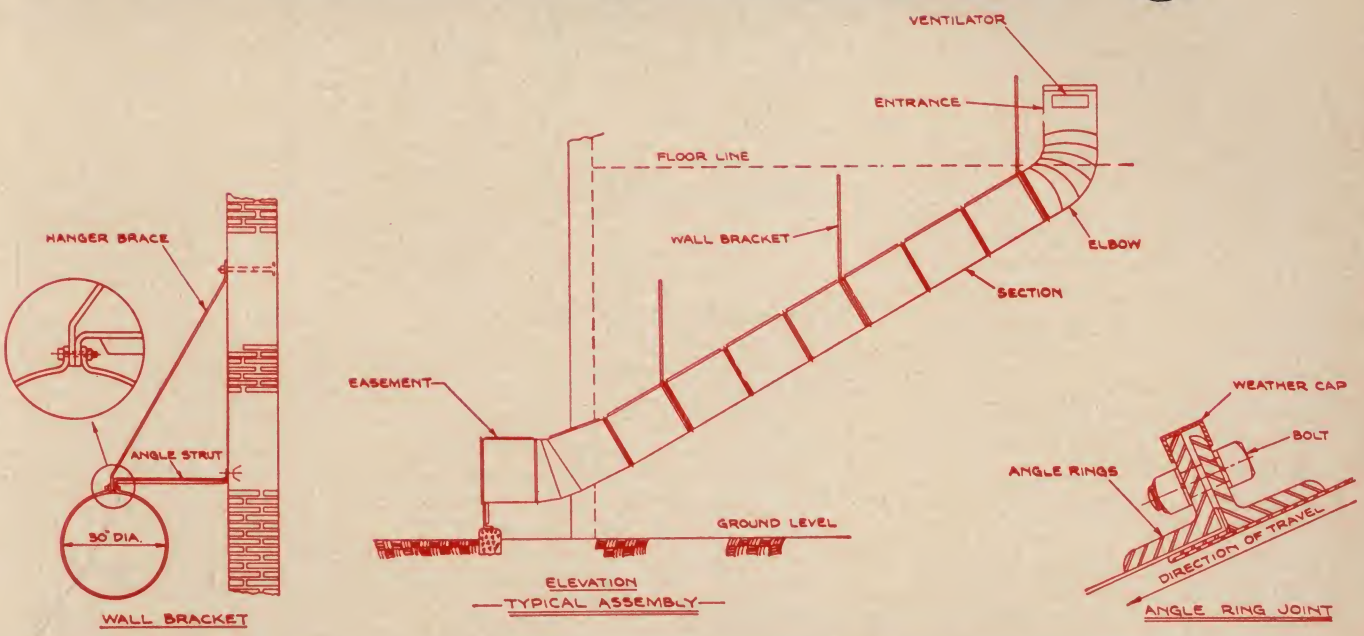
Finish—Entire escape, interior and exterior, excepting the slide, shall have one coat of Rust Inhibitive Paint.

MATERIALS—Aluminum

Housing shall be .081 x 3S ½H aluminum for approximately the lower 3 feet; the next 3 ft. of .072; the remainder of .064.
Spiral Slide shall be .064 x 3S ½H aluminum.
Base angle shall be 2¼"x2¼"x¼"—61 ST 4 aluminum.
Section angles shall be 1¼"x1¼"x3/16"—61 ST 4 aluminum.

Finish—No painting required.

POTTER Tubular Slide Fire Escapes



SPECIFICATIONS—Exterior Types*

Note—Specify under Specialties, not under Structural or Ornamental Iron. All specifications subject to change without notice.

Standard Type—For General Use

The fire escape shall be the POTTER Tubular Slide Escape made by the POTTER FIRE ESCAPE COMPANY, Chicago 45, Illinois.

Entrance Door Assembly—Entrance on inside of building shall be closed with clear ponderosa pine, paneled double doors, 15 in. wide by 42 in. high, weatherstripped, equipped with panic bolt hardware operated with push bars on either door; doors to swing into escape. A ¾ in. diameter horizontal swing bar shall be securely attached to the frame near the top of the entrance.

Elbow—Shall be 30 in. diameter with 8 in. throat radius.

Sections—Shall be 30 in. diameter and not more than 39 in. long and have 1¼"x1¼"x⅛" angle rings riveted to each end for joining the sections. Angle rings to be bolted together with 5/16 in. plated bolts. A channel band shall be placed over the top of angle rings to make a watertight joint.

Easement or lower end—Shall break to approximately horizontal and shall flare from 30 in. to 36 in. diameter. A ¼ in. support shall be attached to the end of the easement with its lower end on concrete at grade level.

Bracing—At least one bracket assembly shall be used for every four sections, or fraction thereof, exclusive of entrance, elbow and the easement.

Approval—The fire escape construction shall have been tested, approved and be listed as standard by the Underwriters' Laboratories.

Pitch—Installations shall be at an angle of approximately 30-degrees.

Hospital Type—Designed for patients on mattresses

Same as STANDARD TYPE except for following changes:

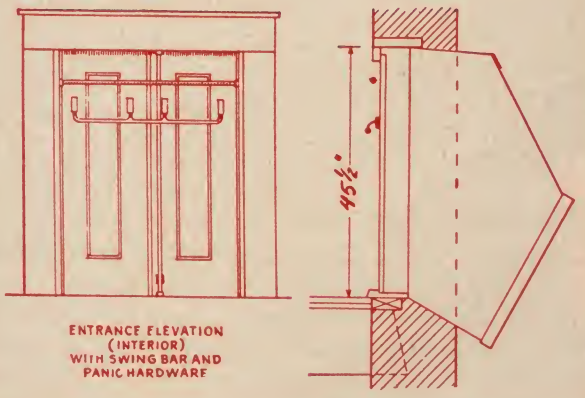
Entrance Door Assembly—Change to ..... double doors, 20 in. wide, 42 in. high .....

Elbows shall be 36 in. diameter, with 40 in. throat radius.

Sections shall be 36 in. diameter .....

Easement shall be 36 in. diameter throughout.

Entrance Details of Both Spiral and Tubular Type Escapes



MATERIALS—Steel

Sheets shall be No. 20 gauge galvanized steel.
Angle rings shall be 1¼"x1¼"x⅛" Hot Rolled Mild Steel.
Bracing angles shall be 1¾"x1¾"x¼" Hot Rolled Mild Steel.

Finish—Exterior of escape shall have one coat of Rust Inhibitive Paint.

MATERIALS—Aluminum

Sheets shall be .051 x 3S ½ H aluminum.
Angle rings shall be 1¼"x1¼"x⅛" 61 ST 4 Aluminum.
Bracing angles shall be 1¾"x1¾"x¼" Hot Rolled Mild Steel with shop coat of paint.
Bracing flats shall be 1¾"x1¾"x¼" Hot Rolled Mild Steel with shop coat of paint.

Finish—No painting required.

POTTER SLIDE TYPE FIRE ESCAPES . . . For Interior Use

In new construction, POTTER Slide Fire Escapes are erected within the walls of the building, not visible from the outside.

Space Savings—Interior installations of POTTER Slide Fire Escapes provide a means of exit in a far smaller area than a standard interior stairway. The illustration at the right gives a comparison of floor space occupied by a typical stair and that taken up by a 5 ft. diameter Potter Spiral Escape. Note: The minimum for a POTTER 7 ft. diameter Escape is 80 square feet.

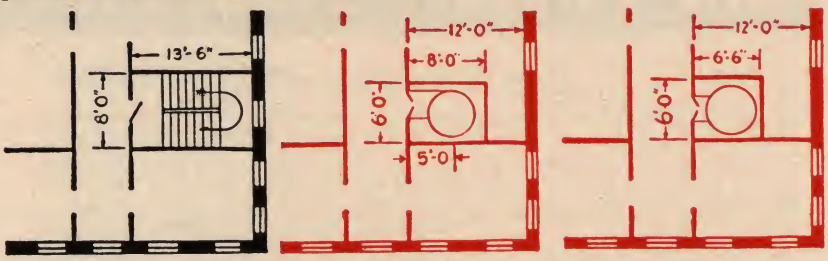
Low Original Cost—Considerably less than installation of standard interior stairways.

Maintenance and Upkeep Savings—Assured by POTTER Slide Type Fire Escapes.

Releases Floor Space—For renting at profitable rates.

Exit Safety, Comfort and Speed—In any weather exit is safe. There is no hazard from sharp descent, fear of high places, heels catching in treads.

Space Requirements



44-in. Stair
Minimum Space
108 square feet

Potter Spiral Escape
Direct Entrance
48 square feet

Potter Spiral Escape
Walk-in Entrance
39 square feet

Typical Installations

	Architect
State Capitol, Springfield, Ill.	C. Herrick Hammond
County Court House, Floydada, Tex.	Haynes & Kirby
Woodberry Forest School, Orange, Va.	Taylor & Fisher
Boone County Hospital, Harrison, Ark.	Wittenberg, Delony & Davidson
Stadium-Dormitory, University of Arizona	Place & Place
Hillcrest Apartments, Wichita, Kansas	Schmidt, Boucher & Overend
Citizens National Bank	Graham, Anderson, Probst & White
Ramsey Tower, Oklahoma City, Okla.	Walter Ahlschlager
Film Exchange, New Orleans, La.	Theo. L. Perrier
State Hospital, Gallipolis, Ohio	Thomas E. Brand
High School, Hampton, Iowa	Dougner, Rich & Woodburn
Starr Commonwealth, Albion, Mich.	Marcus Burrows
Court Square Bldg., Baltimore, Md.	Lucien R. White, Jr.
Building & Loan Bldg., South Bend, Ind.	Austin & Shambleau

Architects and Engineers Specify "POTTER"

Where

Potter Slide Fire Escapes are designed for Schools, Hospitals, Orphanages, Homes for Aged, Mental Institutions, Industrial Plants and Buildings of Public Assembly.

For These Reasons

A Type for Every Need—POTTER Slide Fire Escapes are constructed in two types—The Straight Tubular Chute and the Vertical Spiral—and in two sizes—one for able-bodied persons of all ages; one for removal of bed-ridden patients on mattresses.

Fast Entrance—POTTER escapes are entered direct from the room or hall, eliminating the need for walking out on to platforms and thus assuring the fastest possible exit. They can be entered at many floors at the same time without confusion, congestion or injury.

No Acceleration—There is no acceleration in spiral escapes; therefore, they can be used (as on grain elevators) on thirty-story buildings as safely as on buildings of two or three stories. Because of the change in position, one does not get dizzy.

Fully Enclosed Construction—Because the escapes are fully enclosed, the occupants of POTTER equipped buildings are fully protected from falling objects, smoke, flames and adverse weather conditions which usually interfere with the use of open fire escapes.

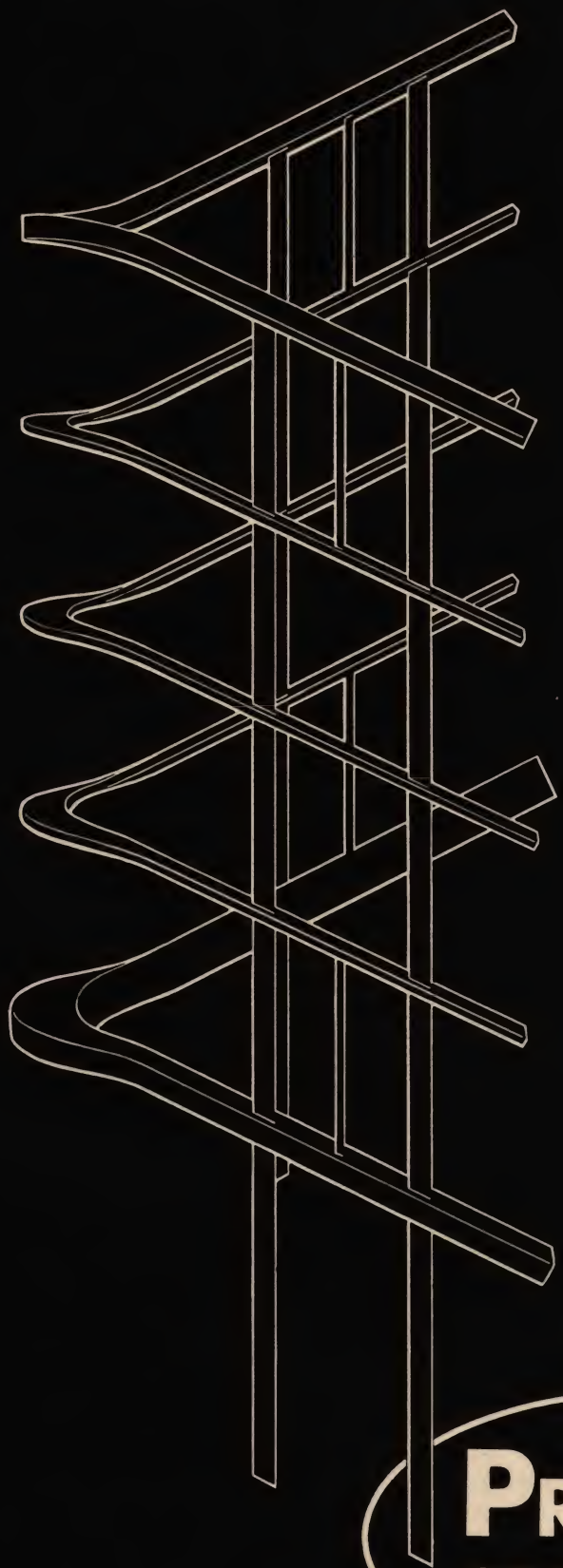
Proved Performance—Hundreds of lives have been saved in 30 instances of record where POTTER Escapes were used to evacuate burning buildings without injury or loss of life.

Fully Approved—POTTER Slide Fire Escapes have been tested, approved and listed as standard by the Underwriters' Laboratories for over 25 years. They carry the approval of the Building Exits Code of the National Fire Protection Association.

Service Facilities—Potter Fire Escape Company is a long established firm with 30 years devoted exclusively to the engineering, manufacture and erection of POTTER Slide Fire Escapes. It is our one product. We are equipped to execute contracts in any part of the country and can furnish complete erection under the supervision of construction superintendents with more than 20 years continuous experience on the work exclusively.

POTTER FIRE ESCAPE COMPANY • 6109 N. California Ave., Chicago 45, Ill.

For Estimates Telephone Rogers Park 4-0098—Collect



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spiral stairways	2 - 4
conventional stairways	5 - 8

PRESTEEL STAIRWAYS

WOODBRIDGE ORNAMENTAL IRON CO.

spiral stairways
steel • aluminum

No. 20-B closed riser type

Risers are made of No. 12 gauge steel. Each riser is flanged and bolted to the center column and is shaped to give extra toe room. Closed Riser provides security and safety at any height.

No. 30-B semi-closed riser type

Each riser is made of $\frac{3}{16}$" steel plate, welded to a collar and bolted to the center column. Risers are shaped with graceful openings.

No. 40-B open riser type

The tread supports are made of 1½"x1½"x$\frac{3}{16}$" angles which are welded to a collar and bolted to the center column. The 40-B has been widely used in the residential field with Wood treads, and is, also, well suited for exterior use with Grating treads.

advantages and features

easily erected

Woodbridge spiral stairways cut time and labor costs. One man can erect them. Parts are matched and marked before shipment. Standardized design makes parts interchangeable. No welding necessary—railings are attached to balustrades with Woodbridge adjustable brackets.

graceful design

The sweep of PresTeel spiral stairways harmonizes with the design of the finest industrial, office, religious or monumental structure.

height is no obstacle

One story or 30 stories, a single flight carries its full traffic load safely.

prompt deliveries

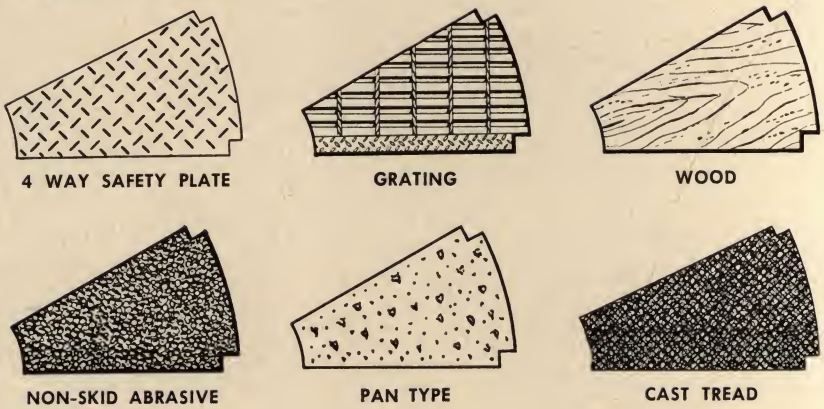
The wide range of sizes and styles carried in stock assures immediate delivery. There is no costly delay when you specify Woodbridge spirals.

Immediate quotations are available on request.

No. 20-B • closed riser type



■ types of treads



Six types of treads are available as illustrated above: $\frac{3}{16}$" 4-way safety plate, 1" x ⅛" welded grating with closed nosing, 1⅛" oak or maple wood sanded but unfinished (special woods on request), ¼" abrasive rolled floor plate, cast safety treads, and pan type for concrete or terrazzo fill.

Standard design is for 12 treads to the circle. Treads are interchangeable—they can be removed and replaced without difficulty.

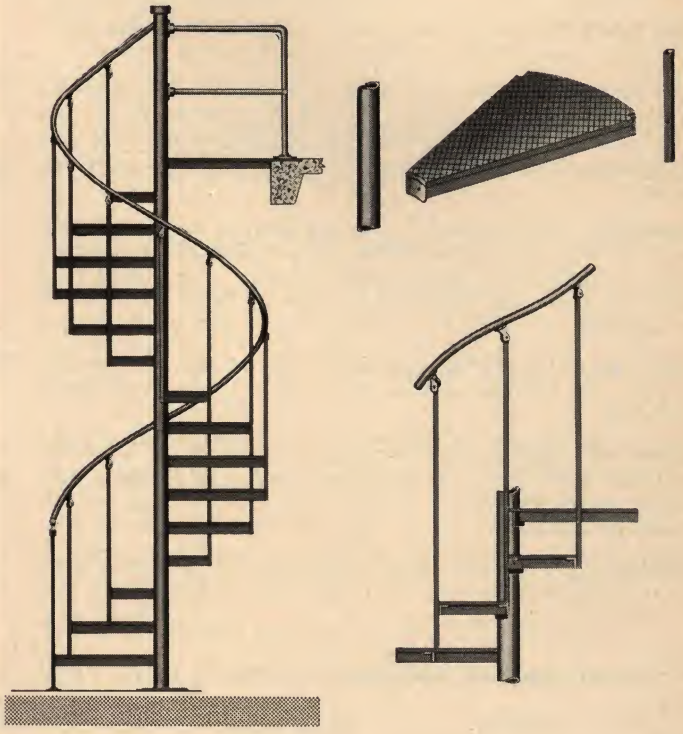
Snap-on plastic handrail covering simplifies and beautifies Woodbridge Spiral Stairways for all types of buildings. Six colors available—color chart on request. Quotations promptly furnished on this additional feature.

No. 30-B • semi-closed riser type



No. 40-B • open riser type

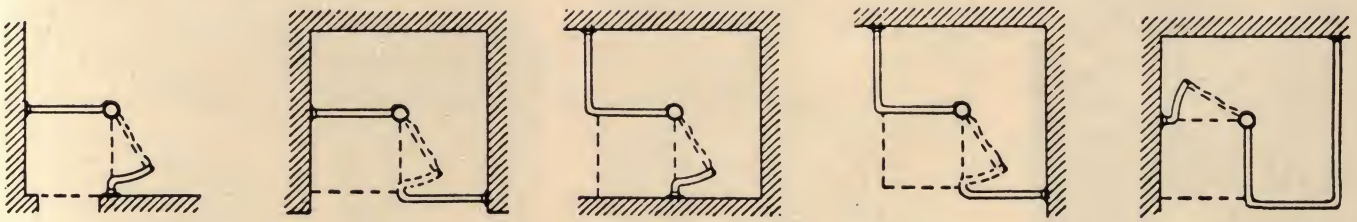
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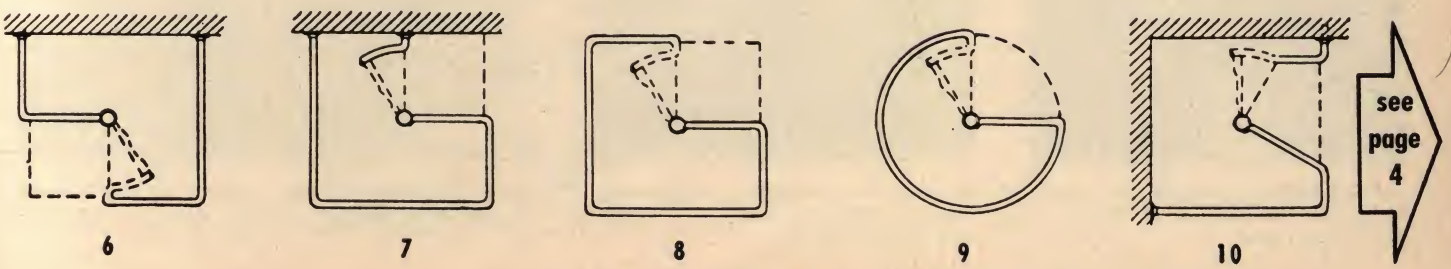


■ types of platforms



■ types of level rails





spiral stairways
steel • aluminum

■ construction

rail standards—Each standard is made from steel bar stock ¾" square. One standard is placed at each riser as shown.

platform—The platform is made of the same material as the treads, with matching surface. Any of five platform types (see sketches on page 3) can be furnished. As many platforms as may be required can be mounted at any desired height for landing purposes.

handrail—The handrail, 1" I.D., and platform double enclosing rails, 1¼" I.D., are of pipe. Each handrail section is shaped to a precise radius for easy and accurate assembly. Ten typical level rail arrangements are illustrated on page 3. Other arrangements are available.

stairwell—Stairwell openings must be large enough to provide clearance for installation. Consult the table below for minimum dimensions.

aluminum stairs—Our spirals are available in all aluminum construction and can be furnished with either safety plate, cast, grating, wood, ¼" abrasive aluminum floor plate or open pan for concrete or terrazzo.

specials—If your plans require spiral stairways of special sizes, we will make them to order, with early delivery guaranteed. Ask for a quotation.

■ size of opening required in floor

Stair diam.	Opening	
	Circular	Square
3'6"	3'8"	3'8"x3'8"
4'0"	4'2"	4'2"x4'2"
4'6"	4'8"	4'8"x4'8"
5'0"	5'2"	5'2"x5'2"
5'6"	5'8"	5'8"x5'8"
6'0"	6'2"	6'2"x6'2"

head room

To assure necessary head room, risers should be not less than 8½" high.

shop details

Will be sent for approval before your order is fabricated.

■ installation

Woodbridge spiral stairways come completely knocked-down, and include necessary bolts and fittings. Each part is matched for correct fit and marked for easy recognition. Installation instructions are simply written and clearly illustrated.

One man, using a hammer, wrench and screwdriver, can erect a Woodbridge spiral stairway. Parts are interchangeable, no welding of parts necessary. Any lost or damaged part can be replaced at once from our stock. If necessary, your spiral stairway can be easily dismantled and moved to a new location.

■ information to furnish on inquiries

When asking for quotations, furnish the following information:

Type of stairway desired (20B, 30B, or 40B).

Stairway diameter and height from finished floor to each floor level.

Sketch showing starting and all landing positions, adjacent walls or partitions if any, and stairwell opening.

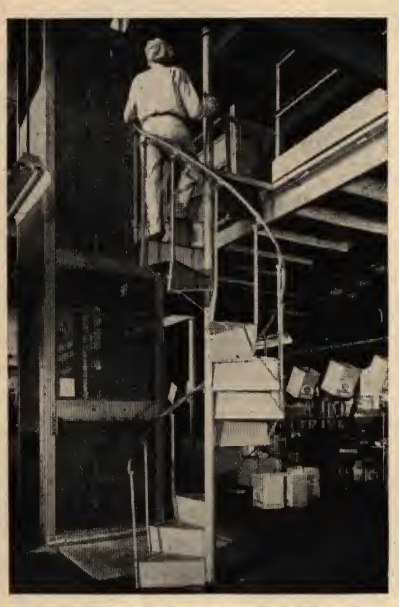
Type of platform and enclosing rail desired.

Type of tread desired.

■ suggested specifications

Furnish and install, where indicated on plans, Woodbridge type no. .... spiral stairways as manufactured by Woodbridge Ornamental Iron Co., 2715 N. Clybourn Ave., Chicago 14, Illinois: .... spiral stairways of .... diameter, ... construction (steel or aluminum), ... feet high; steel center col. 3½" O.D. cold drawn seamless tubing; .... type treads; handrail, 1" I.D., and platform enclosing rails of 1¼" I.D. steel pipe, single rail on stairway and double rail around well opening; one upright rail support on each tread complete with adjustable bracket for attachment to handrail; finished size of stairwell .... diameter (or .... square). All material shall receive one shop coat of rust-inhibitive chromate metal primer. Wood treads are sand finished. If filler is required, please state. (For Aluminum, write plant.)

■ typical installations



Typical industrial installation using Woodbridge No. 20-B steel stairway with 3/16 in. 4-way plate tread.



Chemical plant installation using a 40-ft. high No. 20-B spiral stairway with open steel grating treads.



Typical residential installation to recreation room featuring wood tread No. 20-B spiral stairway with custom handrail. Also available with plastic covered handrail.

■ **standard or custom stairways manufactured to meet highest standards**





■ **features of standardized treads and risers**

1 Plaster soffits unnecessary with this construction.

No unsightly construction from below.

2 All angle irons cut to the same length and carried in stock.

All holes in angle iron are punched in one operation.

By placing angle iron in this position one man can set treads and risers. No scaffolding or ladders necessary.

3 The recess in treads positively gauges and positions treads.

Treads are recessed and punched in one operation.

4 Construction allows for variation in width of treads.

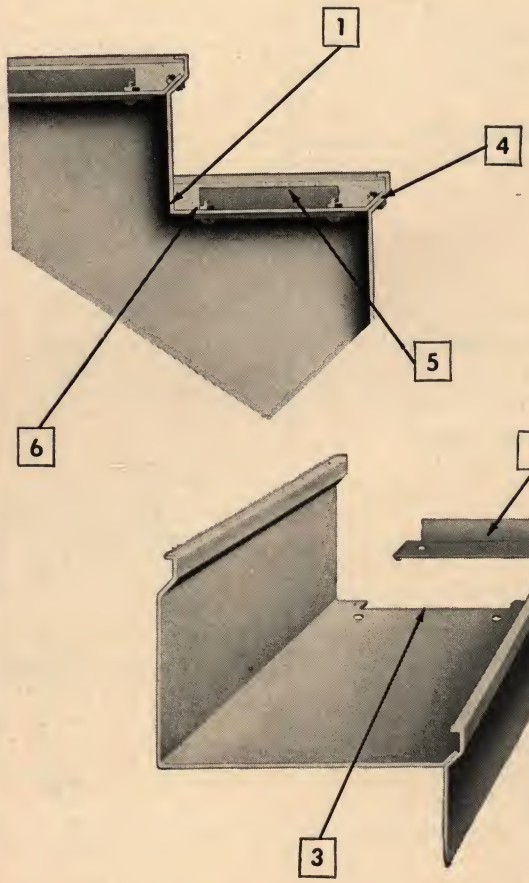
Construction strengthens risers, making braces or anchors unnecessary. Nosing positively will not break away from concrete or other fill.

This construction partially conceals bolt heads.

5 Full strength of angle iron utilized in supporting tread.

6 Note how accessible these bolts are from the top for fastening.

We do not depend on these two bolts to support treads.



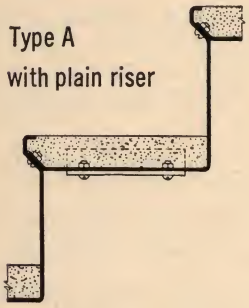
see pages 6-7-8

conventional stairways

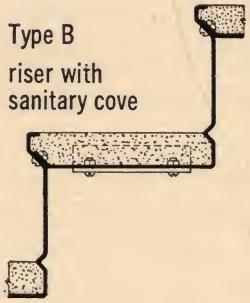
■ basic PRESTEEL tread types

■ recessed treads for 2" cement or composition fill

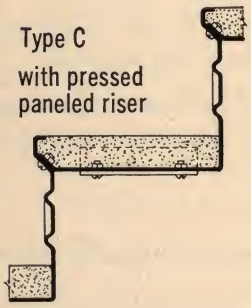
Type A
with plain riser



Type B
riser with
sanitary cove



Type C
with pressed
paneled riser

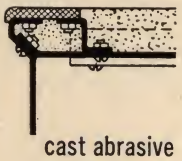


Type D
pressed paneled
riser with
sanitary cove

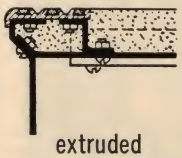


arrangements for safety treads and cork or linoleum finished

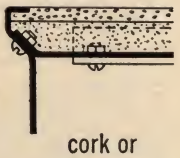
treads for... Types A, B, C and D only



cast abrasive safety nosing



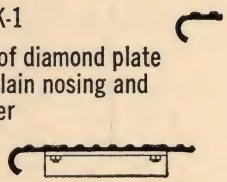
extruded safety tread



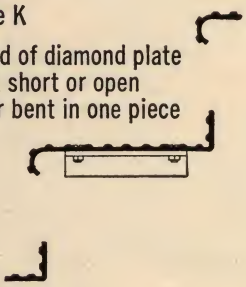
cork or linoleum

■ diamond plate treads

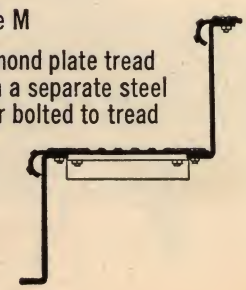
Type K-1
tread of diamond plate with plain nosing and no riser



Type K
tread of diamond plate with short or open riser bent in one piece

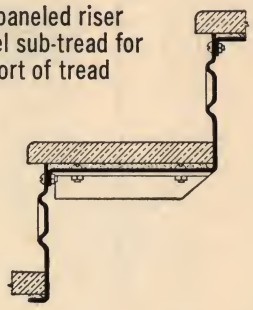


Type M
diamond plate tread with a separate steel riser bolted to tread

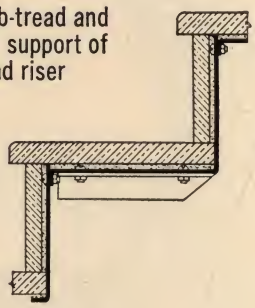


■ treads for marble, terazzo or precast cement

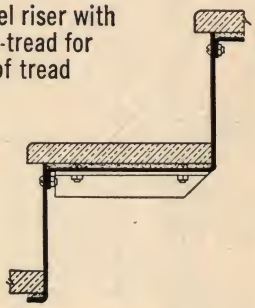
Type E
pressed paneled riser with steel sub-tread for the support of tread



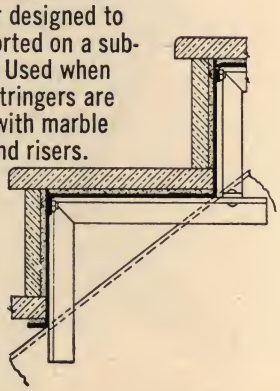
Type F
steel sub-tread and riser for support of tread and riser



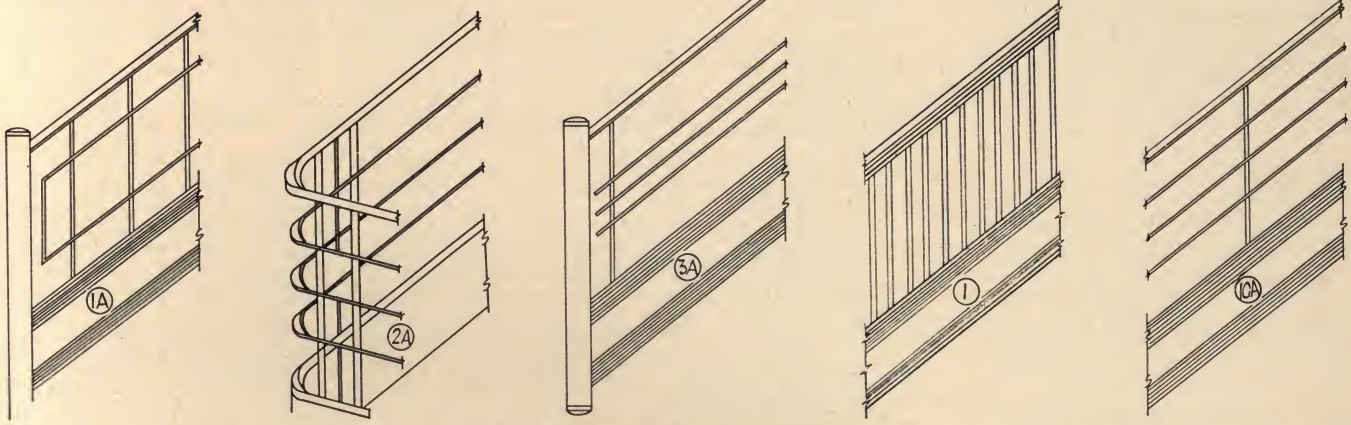
Type G
plain steel riser with steel sub-tread for support of tread

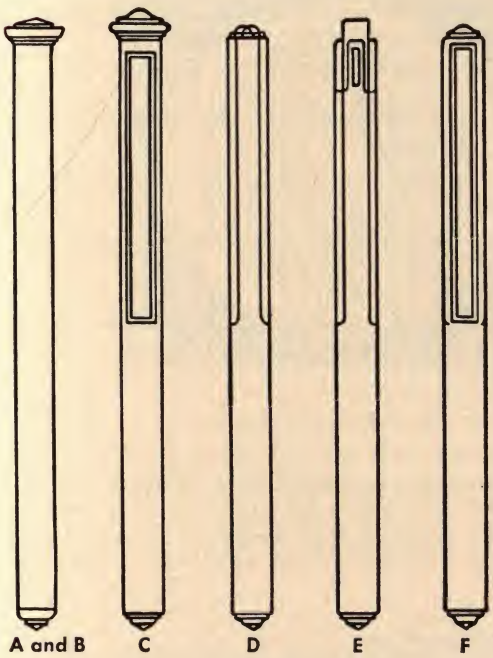


Type H
plain steel sub-tread and riser designed to be supported on a sub-stringer. Used when marble stringers are desired with marble treads and risers.



■ standard balustrades and newel posts

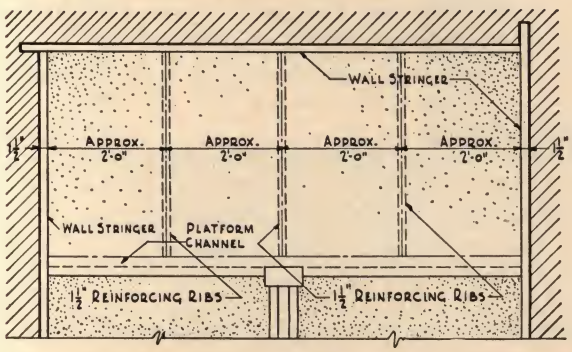




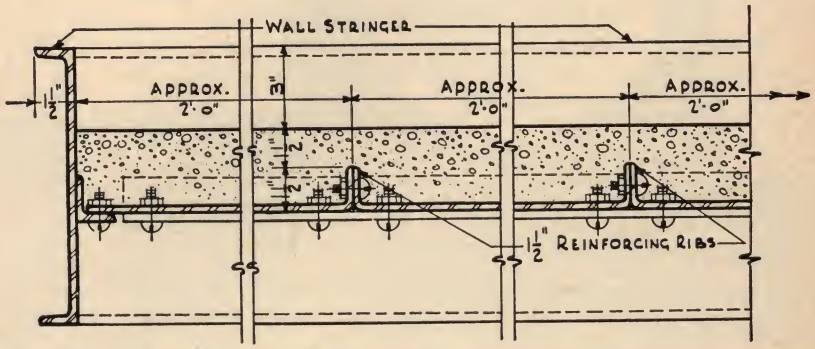
style no.	construction data
1A	Spindles are ½" square bars approximately 10" o.c. Horizontal bars are 1⅜"x¼" flat. Spindles are set into 1"x½" channel at top and bottom.
2A	Horizontal bars are 2"x⅜" flat equally spaced. Rail braces consist of a group of two ¾"x1¼" flat bars 6" o.c. and are set into 1½"x¾" channel at top and fastened to side of stringer at bottom.
3A	Horizontal bars are 1½"x¼" flat arranged in a group of three 3½" o.c., and the group is equally spaced between the top and bottom. Rail braces are ¾" square bars set into 1½"x½" channel at top and fastened to side of stringer at the bottom.
1	Spindles are ½" square bars 3" o.c., set in 1"x½" channels at the top and bottom.
10A	Horizontal bars are 1½"x¼" flat equally spaced. Rail braces are ¾" square bars set into 1½"x½" channel at the top and fastened to the side of the stringer at the bottom. Handrail is 2"x1" rectangular tubing.

style	description
A	4" square steel plain shaft.
B	4" square cast iron plain shaft.
C	4" square cast iron with panel on four sides.
D	4" square cast iron with beveled corners.
E	4" square cast iron suitable for schools, churches, etc.
F	4" square cast iron with rounded corners, suitable for schools where sharp corners are undesirable.

■ platform construction details



Woodbridge standardized platform construction consists of No. 12 or No. 10 gauge Blue Annealed sheets, with formed ribs approximately 2'-0" on center.



Sectional view of our method of platform construction is illustrated above.

conventional stairways

■ construction

Our construction provides a light, inexpensive, strong, durable, non-combustible and easily assembled stairway. It is adaptable to any building where fire-resistant construction is required.

Woodbridge Stairways are built with stringers made of PresTeel, thickness not lighter than 3/16", or light weight channels. The treads and risers are made of one piece steel pressed into the form required, platform plates are made of steel reinforced with the necessary channels and formed ribs, all securely bolted and welded together.

The Woodbridge Standardized PresTeel Tread construction is reinforced at nosing, which prevents the nosing from breaking away from the tread filling. This stair tread will absolutely stand up at this point under the constant wear and tear the tread nosing must withstand.

The stair assembled forms a solid mass which is free from vibration, under loading stress, both vertically and laterally. The strength of our construction insures the maximum of efficiency against damage or failure in case of fire.

■ standard specifications

All steel stairways shown on plans or specified herein shall be the Woodbridge PresTeel type as manufactured by the Woodbridge Ornamental Iron Co., 2715 North Clybourn Avenue, Chicago 14, Illinois.

general—This Contractor shall furnish and install all steel stairways in accordance with plans and specifications in a workmanlike and substantial manner, and will at his own expense furnish and provide new, proper and sufficient materials and labor, scaffolding, implements and cartage of every description necessary for completion of all work herein specified to the satisfaction of the Architects. This Contractor shall furnish and install all beams, struts, hangers, etc., necessary for proper support of these stairs, which are not shown on structural steel and reinforced concrete plans or specified eto be furnished and installed by others.

scope of work—Furnish and install, where indicated on plans, Woodbridge PresTeel stairways, with type .... treads, design .... railing, type .... newels, and .... facias.

shop details—This Contractor shall take all measurements at the building for all stairways, and shall be entirely responsible for same, and shall submit shop details, in triplicate, to the Architect for his approval before fabricating any part of his work.

construction—All stairs shall be constructed as herein specified, and in strict accordance with the latest and most improved practice for this class of work. All work must be fabricated by experienced craftsmen and only the highest type of workmanship will be acceptable.

Wall stringers extending across intermediate platforms or landings at floor levels shall be arc welded and exposed beads of the arc weld shall be ground down smooth where exposed to view. Face stringers shall be neatly connected to newel posts in an approved manner by tenoning of face stringer into newel posts or notching and fitting face stringers to side of newel.

Under no condition are the following obsolete shop practices permitted. Face stringers connected to newel posts by unsightly lugs on newels or with angle connections. Fastening by tap screws or the tenoning of vertical bars in railing to top and bottom channels, or the use of square headed bolts where exposed to view.

treads and risers—Treads and risers shall be made of one piece of Blue Annealed sheet steel, either No. 10, 12 or 14 gauge, depending on the safe load required and the length of the spans, and are to be pressed into shape and to conform to the type of treads specified.

platforms and landings—All intermediate platforms shall have the wall stringers extended around the intermediate platform. Platform stringers shall be at least 2" above cement filling to form base or kick plate. Each platform shall be covered with either No. 10 or 12 gauge Blue Annealed sheet steel properly reinforced with angles on wall stringers and formed ribs not over 2' on centers. Steel platform shall be recessed 3" when concrete or composition filling is used.

wall rail brackets—Furnish and install cast iron wall rail brackets for all wall rails. Brackets shall be 5' on center securely anchored to wall in an approved manner.

painting—All stairways shall be given one shop coat of chromate rust-inhibitive metal primer. Field painting is to be done by the Painting Contractor.

erection—All stairways shall be installed by the Woodbridge Ornamental Iron Co., or their accredited representative.

guarantee—The manufacturer shall guarantee that the stairways will sustain a safe uniformly distributed live load of either 50, 70, 80 or 100 lbs. per square foot, with a safety factor of 4, and shall furnish to the Architect before fabrication, positive proof that he is an established stair manufacturer, and is familiar with all phases of stair construction and shall furnish references as to recent types completed, together with the names of Architects and Contractors.

Note: If either intermediate platforms or landings at floor levels are to be stair construction, indicate on plans and specifications that they are to be an integral part of the stairway.

■ information to furnish on inquiries

The following information is required to make an intelligent estimate. Please include when sending your inquiry.

1. Furnish sketch indicating whether stair well is open or enclosed.
2. Give construction of wall around stairs and floor construction.
3. Give finished floor heights.
4. Give type of construction of landings. If to be furnished by us, give dimensions.
5. State number of risers. If stair has intermediate landing, give number of risers in each run.
6. Give width of stairs required.
7. Give width of treads and height of risers required.
8. Type of tread desired, marble or composition fill, etc.
9. State type of balustrade wanted.
10. State type and size of newel posts wanted.
11. State if wood or pipe wall and hand rails are required.
12. If possible, select type of construction of stair from catalog, giving design number.

Note: We do not furnish wood, hand or wall rails or tread filling, as these items can be furnished to better advantage by local concerns.

■ facilities and service

Our plant is laid out to enable us to manufacture stairways with the utmost economy. Our machinery and tools are of the most modern design, some of which were especially constructed for our work, enabling us to meet promptly and efficiently all demands for our products.

Our thoroughly organized Engineering, Estimating and Sales Departments are at the service of Architects, Engineers and Builders. This catalog, together with our original 92 page catalog, contains the necessary information required to give those interested in stairway construction a fair idea of the product manufactured by us, but for those interested in designing and detailing stairway construction, our standardized construction, in three-quarter inch scale drawings, for use in the drafting room, will be furnished upon request.

***Write*... for 92 page CATALOG ON**

CONVENTIONAL TYPE STAIRWAYS

Catalog No. 58A

Printed in U.S.A.

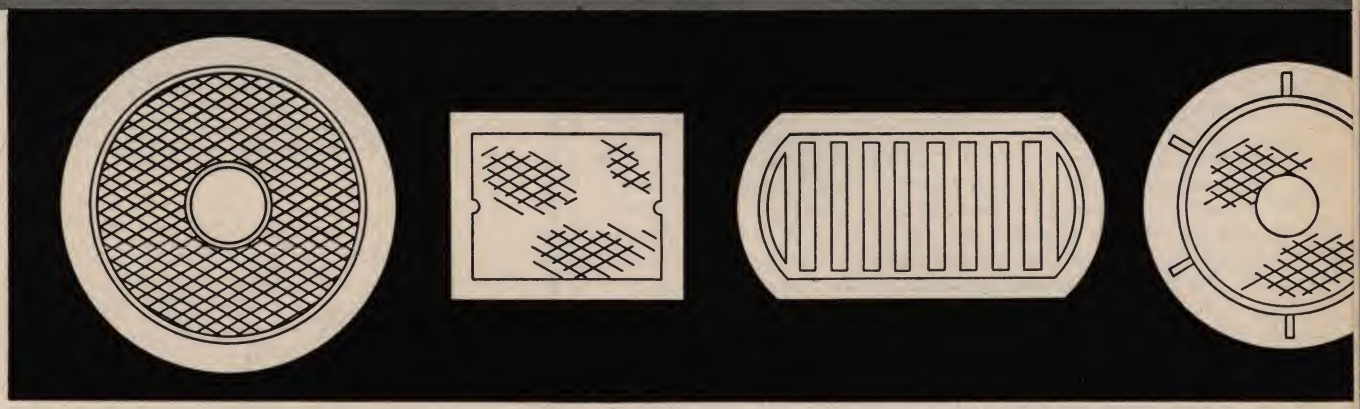
WOODBRIDGE ORNAMENTAL IRON CO.

2715 N. CLYBOURN AVE., CHICAGO 14, ILL.

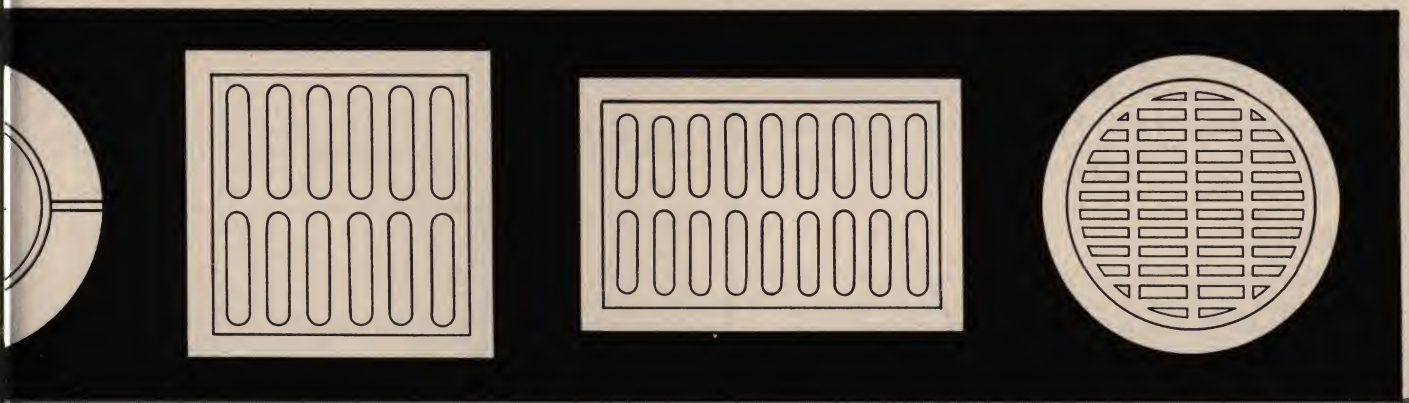
phone: WEllington 5-1500

6i
Ca

standard casting designs



highway • drainage • sewer



Campbell Foundry Company
HARRISON, NEW JERSEY

CAMPBELL
FOUNDRY COMPANY

CONSTRUCTION CASTINGS

material

Castings are made of best quality gray cast iron under direct supervision of well organized production and metallurgical departments. Test bars are made of each and every heat and can be furnished to purchasers of castings with chemical analysis if requested.

Castings are made to conform to A.S.T.M. specifications A-48-56 Class—30 iron which is most satisfactory for construction use. For unusual conditions, castings can be furnished of higher test material of ductile iron made under "Inco" license.

design

Numbers listed show standard designs most generally used and are proportioned to give the most satisfactory service for the purpose intended. Castings designated as heavy are made to satisfy the most rigorous traffic conditions and will carry the heaviest wheel loads permitted by state highway departments. Castings are designed not only to provide strength and water carrying capacity, but in order to secure every possible advantage of metal distribution.

workmanship

In order to produce castings of the highest quality, installation of the latest type mechanical moulding, sand conditioning and melting equipment has been carried out. Pattern equipment of our entire line has been redesigned and arranged for mechanical moulding which produces castings of accurate fit, trueness to pattern and neatness in appearance.

When specified, bearing surfaces on most castings shown can be machined.

standards

Most listings shown herein are of standard design and generally available from stock. It is our suggestion to engineers and architects, catalog numbers be specified wherever possible in order to eliminate delays and for future reference.

In addition to figures shown we have available a large selection of patterns of uncommon designs along with wheel guards, furnace castings, bridge, dock and marine castings.

guarantee

Any casting designated as heavy or highway type if broken in service will be replaced free of charge f.o.b. our plant upon receipt of broken casting within the period of one year.

Campbell Foundry Co. is a nationally recognized supplier of construction castings and is known for dependable service and ability to deliver promptly long or short runs. Your inquiries would be greatly appreciated.

OUR FORTIETH YEAR

Note—We reserve the right to change the dimensions contained herein at any time.

©Campbell Foundry Co.—1959

HEAVY

MANHOLE FRAMES AND COVERS

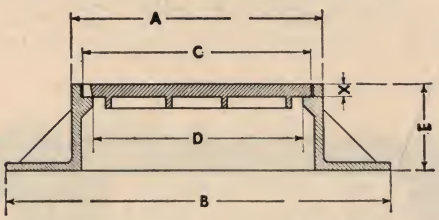
CIRCULAR

● standard frame

round or square flange







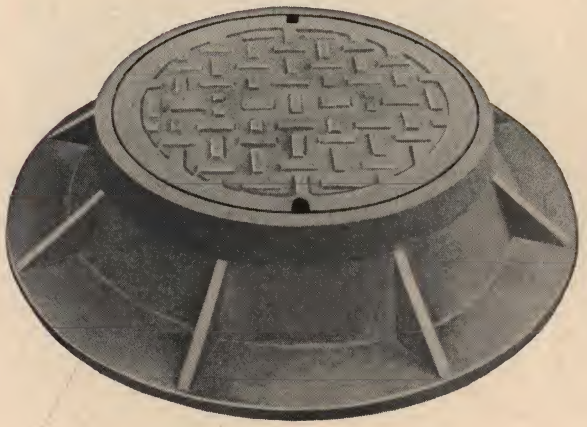
dimensions (inches)						round flange		square flange	
A	B	C	D	E	X	wgt. lbs.	cat. nos.	wgt. lbs.	cat. nos.
14	18	12	11	8	1	120	1000	150	1050
19¾	26	18	16¼	8	1 ¼	240	1001	300	1051
23¾	37	21 ¼	19½	9 ⅝	1 ⅜	400	1002	470	1052
26	40	22 ½	21	10	1 ½	600	1003	680	1053
25	36	22¾	21	9	1¾	495	1004	550	1054
25 ¼	36	23	21½	9	1 ⅜	450	1005	525	1055
27	38 ¼	23¾	22	11	1 ½	600	1006	680	1056
26 ¼	34	24	21¾	8	1 ⅜	450	1007	520	1057
26 ¼	36	24	22	10	1 ⅜	455	1008	525	1058
28	36	25¾	24	8	1 ⅜	460	1009	535	1059
28¾	38 ½	26 ⅜	24½	8	1 ½	665	1010	740	1060
32 ¼	42	30	27¾	8	1 ½	690	1011	770	1061
34	43	32	30	8	1 ½	765	1012	850	1062
38 ½	45	36	34	8	1 ½	870	1013	960	1063
44 ¼	52	42	40	8	2	x	1014	x	1064
50¾	60	48	46	8	2 ½	x	1015	x	1065

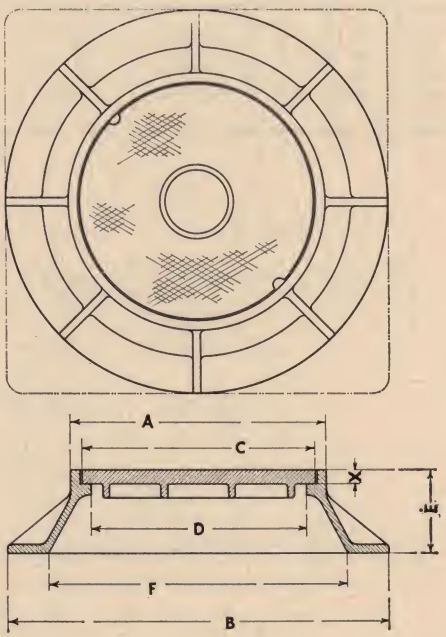
grating type manholes available

CONSTRUCTION CASTINGS

heavy manhole frames and covers

● flared type
round or square flange

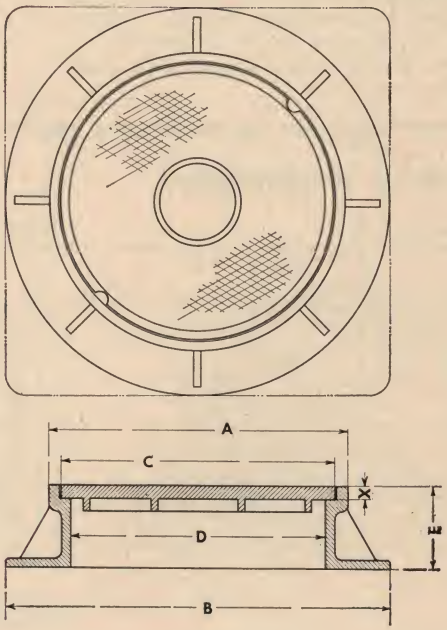




dimensions (inches)							round flange		square flange	
A	B	C	D	E	F	X	wght. lbs.	cat. nos.	wght. lbs.	cat. nos.
24 ¼	40	22 ½	**20¾**	10	30	1 ½	550	1201	630	1226
27 ½	41	25 ⅜	**23**	8	31	2	525	1202	600	1227
28	40	25¾	**24**	8	32	1 ⅜	480	1203	565	1228
28	43 ½	25¾	**24**	10	34 ½	1 ⅜	600	1204	680	1229
31	44	28¾	**27**	10	37 ½	1 ⅜	735	1205	825	1230
34	49	31¾	**30**	10	40	1 ⅜	840	1206	950	1231
40	53	37¾	**36**	10	46	1 ½	1050	1207	1200	1232

● bell and utility type
round or square flange

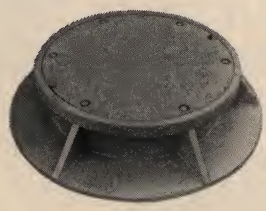




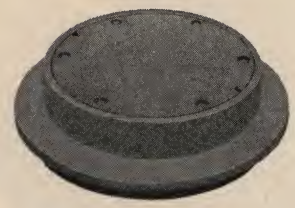
dimensions (inches)						round flange		square flange	
A	B	C	D	E	X	wght. lbs.	cat. nos.	wght. lbs.	cat. nos.
25¾	31	23¾	**22**	8	2 ½	390	1102	460	1127
26 ¼	38	24	**22¼**	9	1 ⅜	510	1103	480	1128
28	36	25¾	**24**	8	1 ⅜	455	1104	545	1129
28	36	25¾	**24**	10	1 ⅜	610	1105	700	1130
31	37	28¾	**27**	8	1 ⅜	660	1106	750	1131
34	40	31¾	**30**	8	1 ⅜	700	1107	780	1132
41	48	37¾	**36**	8	1 ½	950	1108	1100	1133
47	53	44 ¼	**42**	8	1 ½	1265	1109	1355	1134

CIRCULAR

● bolted



type A

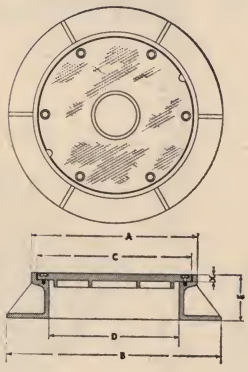


type B

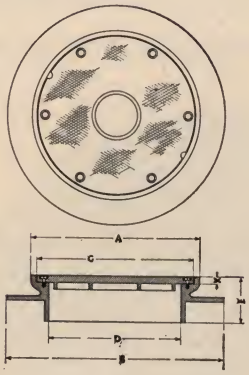


type C

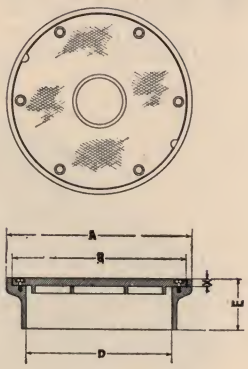
type A



type B



type C

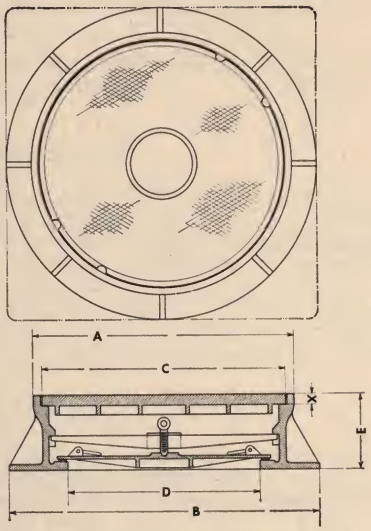


Manhole frames and covers shown on this page are supplied with machined bearing surfaces. Bolts are ½" diameter bronze. If specified, ¼" flat rubber gasket can be furnished to make watertight.

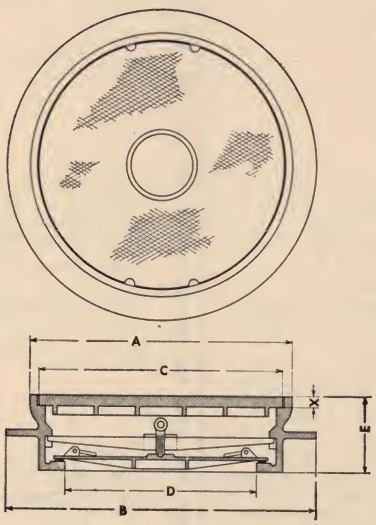
dimensions (inches)						catalog numbers		
A	B	C	D	E	X	type A	type B	type C
24	28	21 7/8	**18**	8	1 ¼	1501	1514	1526
30	34	27¾	**24**	8	1 ¼	1502	1515	1527
36	40	33¾	**30**	8	1 ½	1503	1516	1528
42	46	39¾	**36**	8	1 ½	1504	1517	1529

● locked watertight

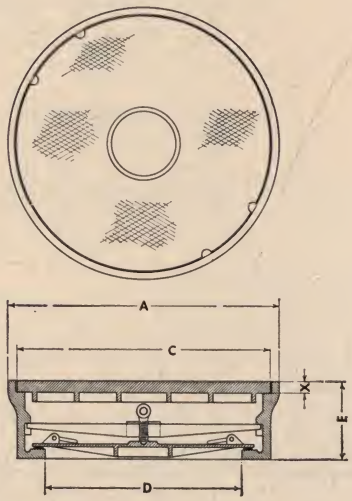
type A



type B



type C



Castings shown are equipped with bronze locking screw, forged steel lock bar, lock clamp and gasket.

dimensions (inches)						catalog numbers			
						type A			
A	B	C	D	E	X	round flange	square flange	type B	type C
28	36	25¾	**21**	8	1 ⅜	1538	1550	1563	1575
34	40	31¾	**24**	8	1 ⅜	1539	1551	1564	1576
34	40	31¾	**27**	8	1 ⅜	1540	1552	1565	1577
41	48	37¾	**30**	8	1 ½	1541	1553	1566	1578
47	53	44¼	**36**	8	1 ½	1542	1554	1567	1579

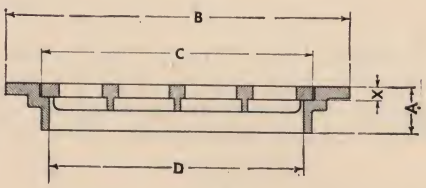
heavy manhole frames and covers

CIRCULAR





solid cover

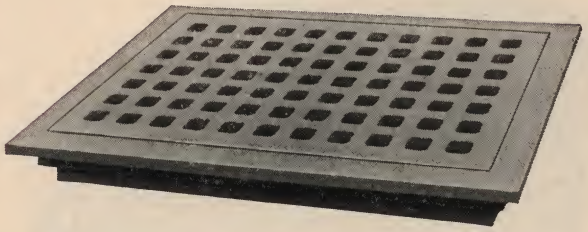


grating

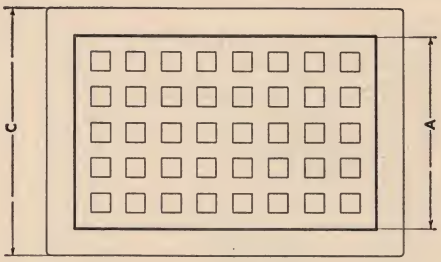
dimensions (inches)				catalog numbers					
				solid cover			grating		
B	C	D	X	A=4½"	6"	8"	A=4½"	6"	8"
16	14	**12**	1	1715	1725	1735	1745	1755	1765
22½	19½	**18**	1	1716	1726	1736	1746	1756	1766
29½	23	**21**	1⅜	1717	1727	1737	1747	1757	1767
32	25¾	**24**	1⅜	1718	1728	1738	1748	1758	1768
39	31¾	**30**	1½	1719	1729	1739	1749	1759	1769
44½	37¾	**36**	1½	1720	1730	1740	1750	1760	1770

NOTE—Larger sizes, weights, and opening areas on request.
* Light frame details and specifications are available on request.

RECTANGULAR • SQUARE

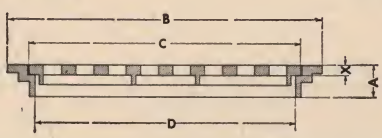


■ rectangular



							catalog numbers	
A	B	C	D	E	X	clear opening	solid	grating
13¾	19¾	18	24	3½	1	**12 x 18**	3300	3325
13¾	25¾	18	30	3½	1	**12 x 24**	3301	3326
19¾	25¾	24	30	4½	1½	**18 x 24**	3302	3327
19¾	31¾	24	37	4½	1½	**18 x 30**	3303	3328
25¾	31¾	31	37	4½	1½	**24 x 30**	3304	3329
25¾	37¾	31	43	4½	1½	**24 x 36**	3305	3330
25¾	49¾	32	56	4½	1½	**24 x 48**	3306	3331
31¾	37¾	37	43	4½	1½	**30 x 36**	3307	3332
31¾	49¾	37	55	4½	1½	**30 x 48**	3308	3333
37¾	49¾	43	55	4½	1½	**36 x 48**	3309	3334

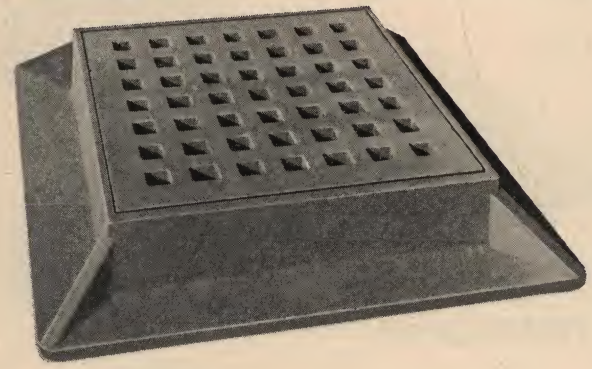
■ square

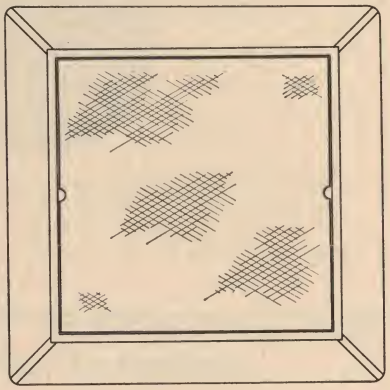


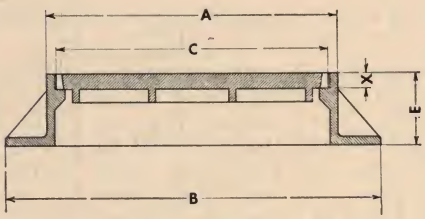
					catalog numbers	
A	B	C	D	X	solid	grating
4½	19	13⅞	**12**	1	3230	3245
4½	24	19¾	**18**	1½	3231	3246
4½	31	25¾	**24**	1¼	3232	3247
4½	37	31½	**30**	1¼	3233	3248
4½	43	37¾	**36**	1½	3234	3249
4½	49	43¾	**42**	1½	3235	3250
4½	55	49¾	**48**	1½	3236	3251

SQUARE FRAMES with grates and covers

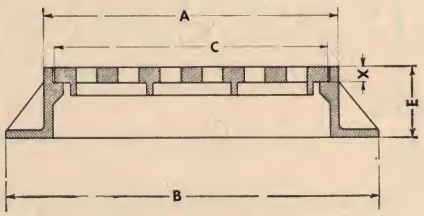
■ heavy design







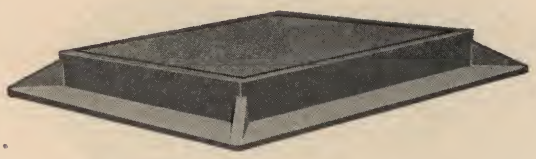
solid

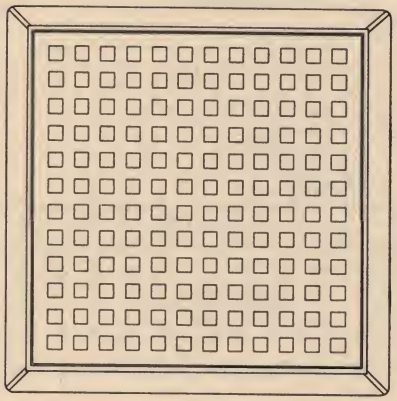


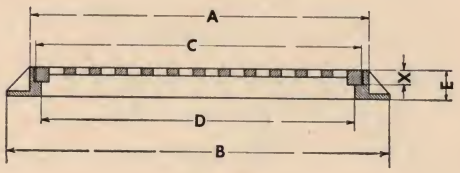
grating

dimensions (inches)					catalog numbers	
A	B	C	E	X	solid	grate
13½	18	**12**	3	1	2900	2913
19½	27	**18**	3	1¼	2901	2914
25¾	33	**24**	4½	1¾	2902	2915
28¾	36	**27**	4½	1¾	2903	2916
31¾	39	**30**	4½	1¾	2904	2917
37¾	45	**36**	4½	1¾	2905	2918

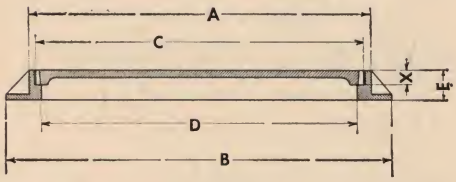
□ light design







grating



solid

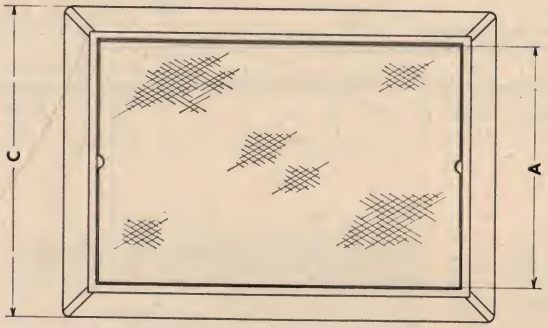
dimensions (inches)						catalog numbers	
A	B	C	D	E	X	solid	grate
10½	14	9¼	**8**	3	1¼	3180	3190
14¾	18	13¼	**12**	3	1½	3181	3191
20½	24	19¾	**18**	3	1½	3182	3192
26¾	30	25¼	**24**	3	1½	3183	3193
32¾	36	31¼	**30**	3	1½	3184	3194
38½	42	37¼	**36**	3	1½	3185	3195
45	48	43¼	**42**	3	1½	3186	3196
51	54	49¾	**48**	3	1½	3187	3197

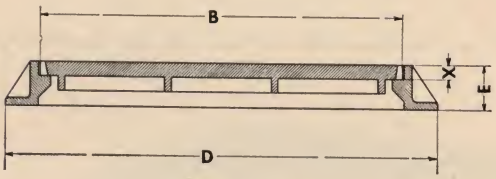
RECTANGULAR FRAMES with grates and covers

6i
Ca

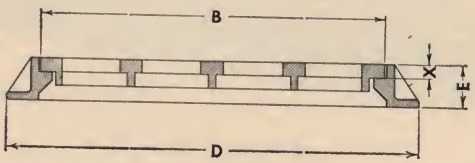
■ heavy design







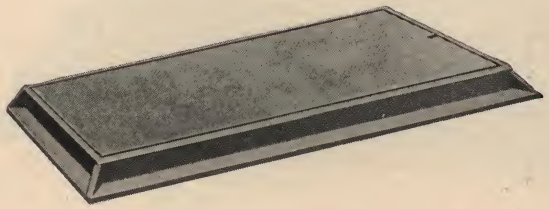
solid

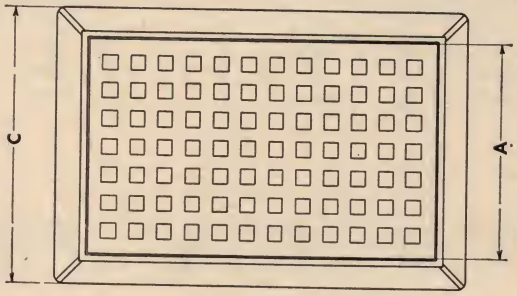


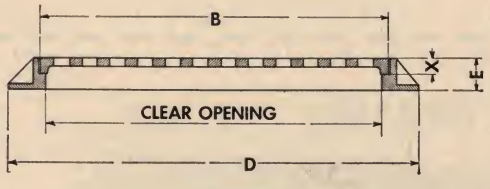
grating

dimensions (inches)						catalog numbers	
A	B	C	D	E	X	solid	grate
12	18	18	24	4	1	3060	3080
12	24	18	30	4	1 ½	3061	3081
18	24	24	30	4	1 ½	3062	3082
18	30	24	36	4	1 ¼	3063	3083
24	30	30	36	4 ½	1 ¼	3064	3084
24	36	31	43	4 ½	1 ½	3065	3085
24	48	31	55	4 ½	1 ½	3066	3086
30	36	36	42	4 ½	1 ½	3067	3087
30	42	36	48	4 ½	1 ½	3068	3088
30	48	38	56	5	1 ½	3069	3089
36	48	42	54	5	1 ½	3070	3090

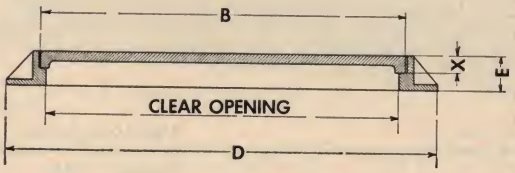
□ light design







grating

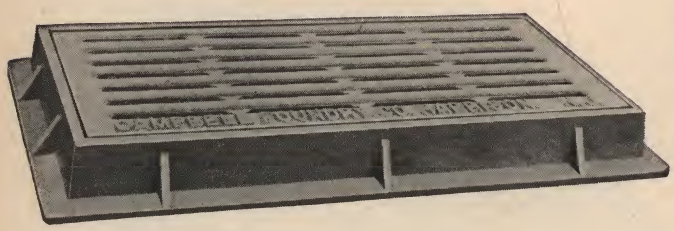


solid

dimensions (inches)						catalog numbers		
A	B	C	D	E	X	clear opening	solid	grate
7 ¼	13 ¼	12	18	3	1 ½	6 x 12	3200	3215
13 ¼	19 ¼	18	24	3	1 ½	12 x 18	3201	3216
13 ¼	25 ¼	18	30	3	1 ½	12 x 24	3202	3217
19 ¾	25 ¾	24	30	3	1 ½	18 x 24	3203	3218
19 ¾	31 ¾	24	36	3	1 ½	18 x 30	3204	3219
25 ¾	31 ¾	30	36	3	1 ½	24 x 30	3205	3220
25 ¼	37 ¼	30	42	3	1 ½	24 x 36	3206	3221
25 ¼	49 ¼	30	54	3	1 ½	24 x 48	3210	3225
31 ¼	37 ¼	36	42	3	1 ½	30 x 36	3207	3222
31 ¼	49 ¼	36	54	3	1 ½	30 x 48	3208	3223
37 ¼	49 ¼	42	54	3	1 ½	36 x 48	3209	3224

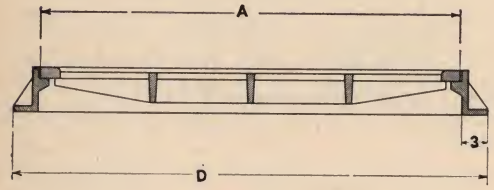
STREAMFLOW GRATING®

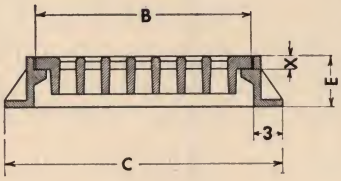
■ single



dimensions (inches)

A	B	C	D	E	X	cat. nos.
34⅛	20½	28	41½	4	1¼	3430
38	21⅝	28	44¾	5	2	3431
47¾	21¾	28	54	5	1¼	3432
49¼	29¾	36	55½	5	1¼	3433



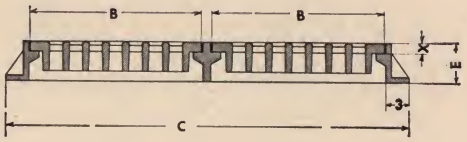


■ double



dimensions (inches)

A	B	C	D	E	X	cat. nos.
35¾	21¾	51	42	5	1¼	3439
47¾	21¾	51	54	5	1¼	3440

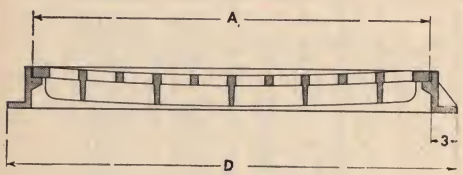


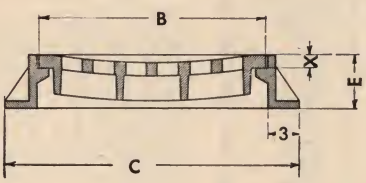
OVAL GRATING

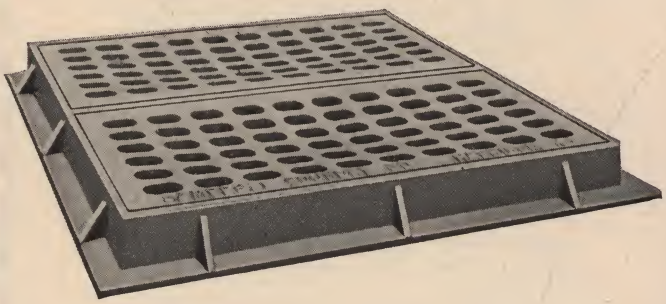


dimensions (inches)

A	B	C	D	E	X	catalog numbers: concave grate	catalog numbers: flat grate
35½	21¾	28	42	5	1¼	3400	3410
38	21⅝	28	44¾	5	2	3401	3411
47¾	21¾	28	54	5	1¼	3402	3412
49¼	29¾	36	55½	5	1¼	3403	3413

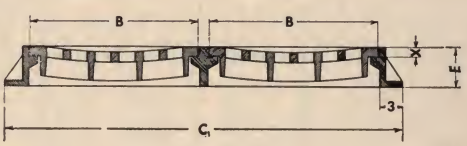






dimensions (inches)

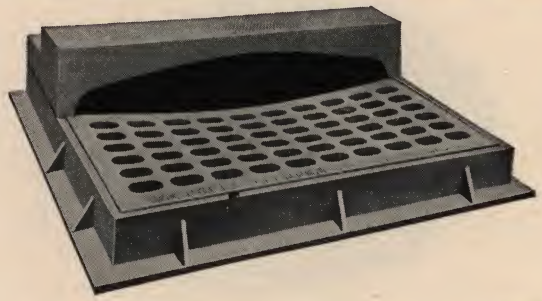
A	B	C	D	E	X	catalog numbers: concave grate	catalog numbers: flat grate
35¾	21¾	51	42	5	1¼	3420	3422
47¾	21¾	51	54	5	1¼	3421	3423

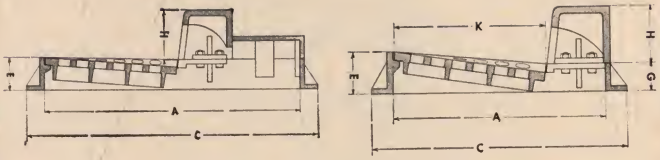


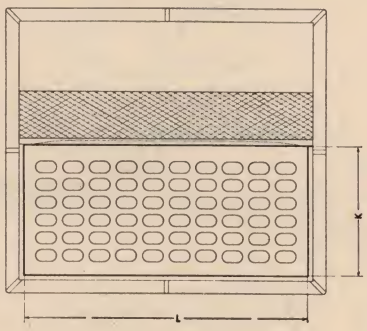
HEAVY CATCH BASIN HEADS

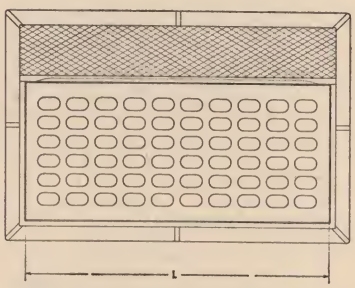
OVAL GRATING

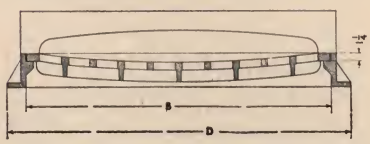
■ **curb type** with and without back plate





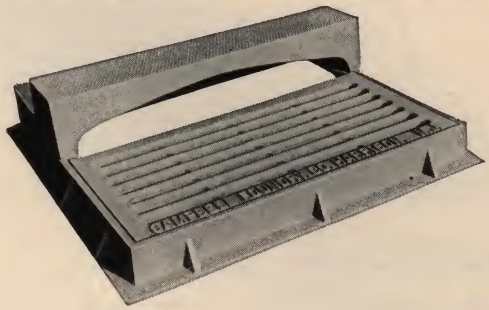


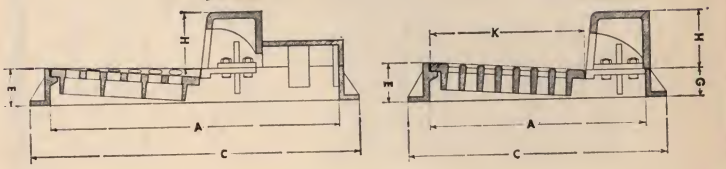


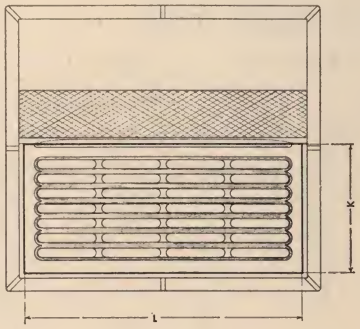


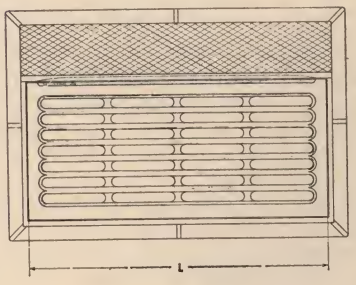
STREAMFLOW GRATING®

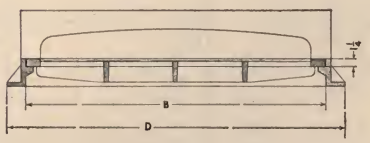
■ **curb type** with and without back plate











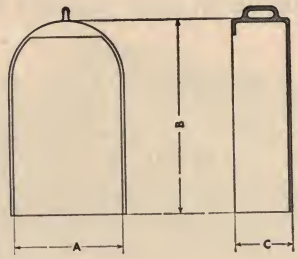
● with backplate dimensions (inches)									catalog numbers		
									oval grate		stream-flow
A	B	C	D	E	G	H	K	L	concave	flat	
27½	25½	36	34	5		8	18½	25¼	2520	2530	2545
30	30	36	36	5½		8	21¾	29¾	2521	2531	2546
36	36	42	42	5½		8	21¾	35¾	2522	2532	2547
42	48	48	54	5½		8	21¾	47¾	2523	2533	2548
● without backplate											
30	36	36	42	5½	4	8	21¾	35¾	2500	2510	2540
30	48	36	54	5½	4	8	21¾	47¾	2501	2511	2541

NOTE—Unless otherwise specified, curb head will be 8″ deep with 1″ batter. When ordering castings other than standard, the following information is required:

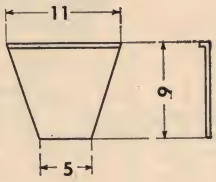
1. Curb Height 2. Batter 3. Radius in feet or straight

CATCH BASIN ACCESSORIES

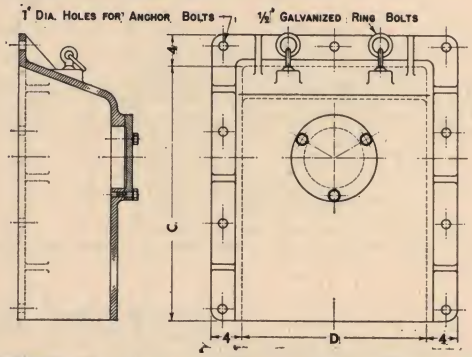
● hood and hook (standard)



dimensions (inches)			cat.
A	B	C	nos.
9½	16	4¾	2560
11½	20½	5½	2561
13¼	23½	6½	2562
15¾	26	7½	2563
18	27	9	2564
20	27	11	2565
25¼	30	11¼	2566



● vapor tight trap



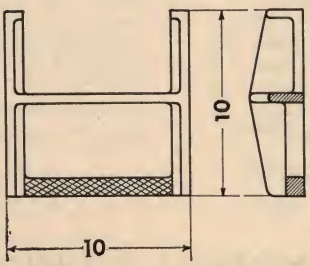
PURPOSE: To prevent infiltration of inflammable or explosive liquids and vapors into drainage systems.

FEATURES: Traps furnished with inspection and clean-out cover bolted to body with ½" x 2½" Stainless Steel Cap Screws. Bearing surfaces between body and cover machined to prevent leakage.
A neoprene gasket, ½" thick x 3" wide provides seal between catch basin wall and flange of body.
Detailed drawings and installation instructions for new and existing systems furnished on request.

pipe size	dimen. (in.) C	dimen. (in.) D	cat. nos.	pipe size	dimen. (in.) C	dimen. (in.) D	cat. nos.
6	20	10	2660	18	33	24	2665
8	22	13	2661	21	36	30	2666
10	24	15	2662	24	40	32	2667
12	26	17	2663	27	43	40	2668
15	30	21	2664	30	46	40	2669

● manhole steps

pattern number 2581 shown. Full details and specifications for other types are available on request.

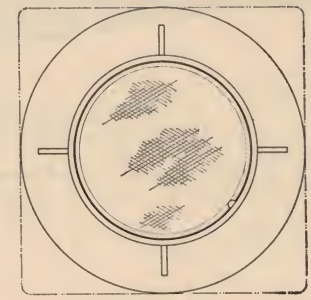


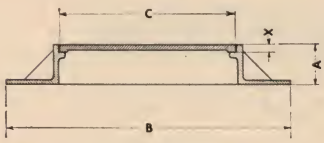
LIGHT SIDEWALK FRAMES

STANDARD TYPE

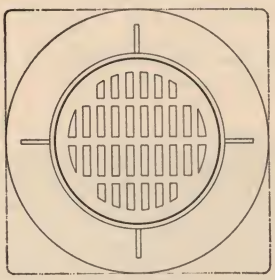
○ circular—round and square flange

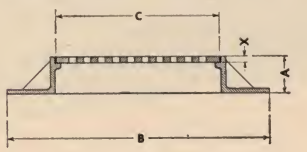




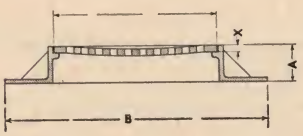


solid





flat



concave

dimensions (inches)				catalog numbers: solid cover		flat grate		concave grate	
A	B	C	X	rd. flg.	sq. flg.	rd. flg.	sq. flg.	rd. flg.	sq. flg.
4	17	12	¾	1300	1313	1350	1363	1400	1413
4	24	18	1	1301	1314	1351	1364	1401	1414
4	32	24	1	1302	1315	1352	1365	1402	1415
6	34	24	1	1303	1316	1353	1366	1403	1416
6	38	30	1	1304	1317	1354	1367	1404	1417
8	45	36	1¼	1305	1318	1355	1368	1405	1418

CONSTRUCTION CASTINGS

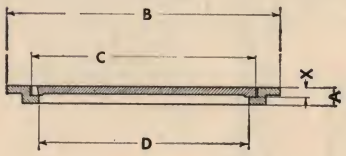
light sidewalk frames and covers

SLAB TYPE

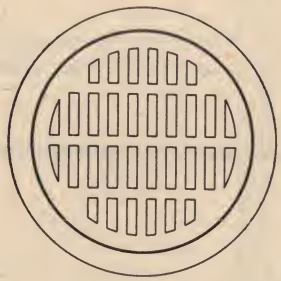
○ circular

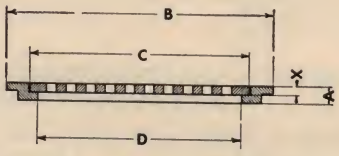




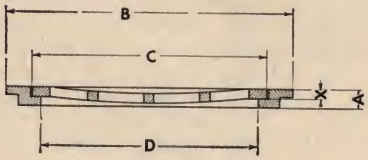


solid





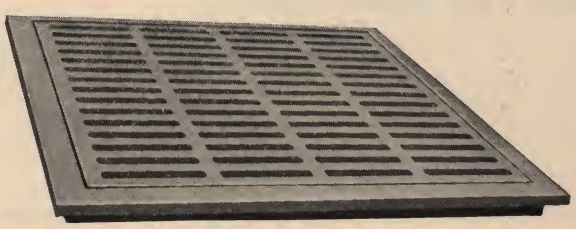
flat

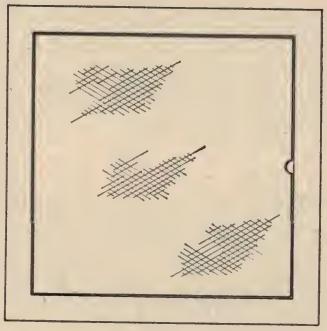


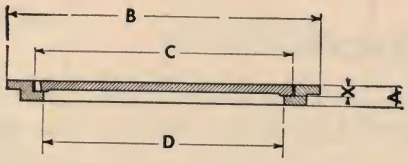
concave

dimensions (inches)					catalog numbers		
A	B	C	D	X	solid cover	flat grate	concave grate
1 ⅞	10	7	6	¾	1325	1375	1425
1 ½	16	13	12	¾	1326	1376	1426
2	22 ½	19	18	1	1327	1377	1427
2	28	25	24	1 ⅛	1328	1378	1428
2	34 ½	31	30	1	1329	1379	1429
2	40	37 ½	36	1	1330	1380	1430

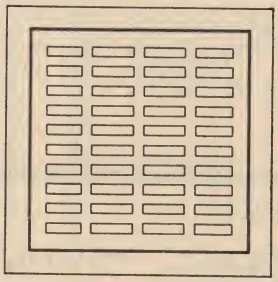
□ square

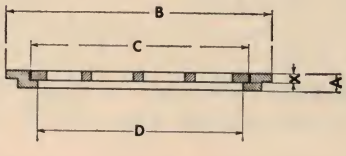




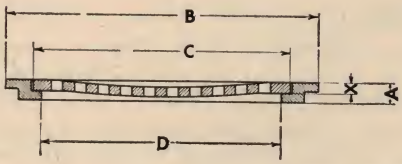


solid





flat



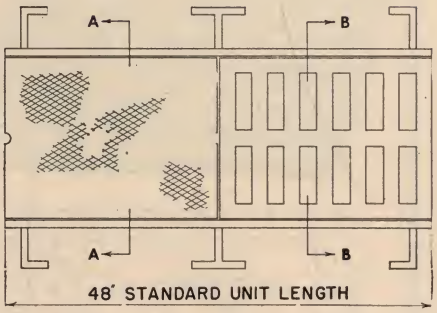
concave

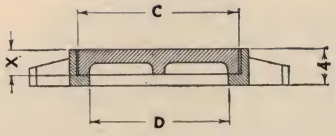
dimensions (inches)					catalog numbers		
A	B	C	D	X	solid cover	flat grate	concave grate
1 ½	10	7	6	¾	1338	1388	1438
1 ½	16	13	12	¾	1339	1389	1439
1 ¾	24	19 ¼	18	1	1340	1390	1440
1 ¾	30	25 ¼	24	1	1341	1391	1441
2	36	31 ⅞	30	1	1342	1392	1442
2	42	37 ¾	36	1 ¼	1343	1393	1443
2 ½	48	43 ¾	42	1 ¼	1344	1394	1444

CAMPBELL

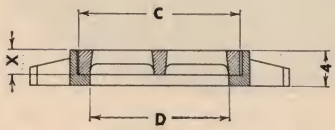
HEAVY AND LIGHT TRENCH FRAMES

with solid covers • grates





section A-A



section B-B

STANDARD DESIGN

For trenches greater than 18 inches in width, covers and grates are made in 2 foot lengths; frames are 4 feet long for all widths. End pieces for frames are furnished when required.

MODIFICATIONS

Adjacent frames may be bolted together, and covers or grates may be bolted in frames. Bearing surfaces are machined if specified. Units may be varied in length or in longitudinal direction to suit almost any field condition. Opening sizes and direction in gratings are variable according to application and/or specification.

Details will be furnished on request.

dimensions (in.)			pattern numbers			
C	D	X	heavy cover	heavy grate	light cover	light grate
7¾	6	2	4500	4525	4550	4575
11¾	10	2	4501	4526	4551	4576
14	12	2¾	4502	4527	4552	4577
19¾	18	2¾	4503	4528	4553	4578
25¾	24	2¾	4504	4529	4554	4579
31¾	30	2¾	4505	4530	4555	4580

OTHER CAMPBELL PRODUCTS

AIRPORT CASTINGS: Designed to C.A.A. Specifications. Manhole Frames & Covers—Inlet Frames & Gratings—Electrical & Water Frames & Covers—Mooring Eyes

BRIDGE CASTINGS: Drainage Scuppers—Counter Weights—C.I. Curbing—Railing Post Sockets—Column Guards

DOCK & PIER CASTINGS: Scuppers—Cleats

BUILDING CASTINGS: Floor Drains—Clean Outs—Vault Frames & Covers—Doorway Drains—Coal Hole Frames, Covers, & Sleeves—Floor Plates—Wheel Guards

WATER LINE CASTINGS: Valve Boxes—Blow Off, Access, & Line Manhole Frame & Covers—Hydrant Drain Bases—Meter Pit Frames & Covers

ELECTRICAL UTILITY CASTINGS: Junction Box, Handhole Frames & Covers—Watertight Manhole Frames & Covers

GAS LINE CASTINGS: Valve Boxes—Meter & Regulator Chamber Frames & Covers

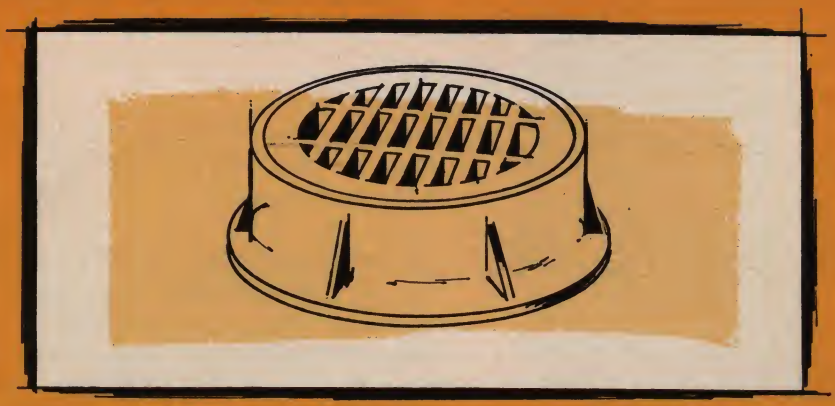
MISCELLANEOUS: Weights for Soil Testing—Caisson Weights—Shovel & Crane Counter Weights—Incinerator Castings—Lamphole & Monument Boxes—Extension Frames for Manholes & Inlets for Roadway Resurfacing—Flush Type Toe Pockets—Covers & Grates to Fit All Standard Sizes & Types of Pipe—Bell or Spigot End—Demolition Balls—C.I. Curbing—Hinged Frames & Covers—Frames & Covers with Locking Devices—Vent Caps

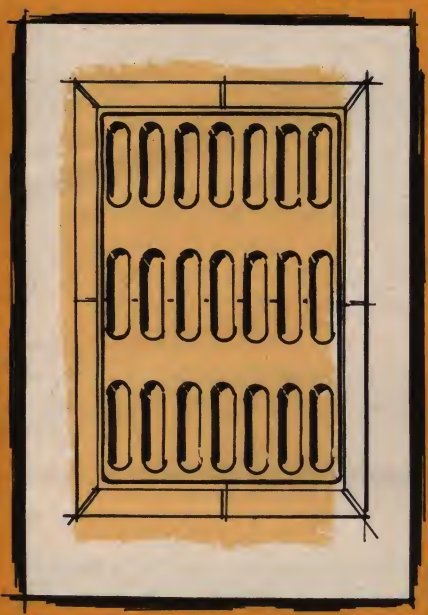
CAMPBELL FOUNDRY CO.

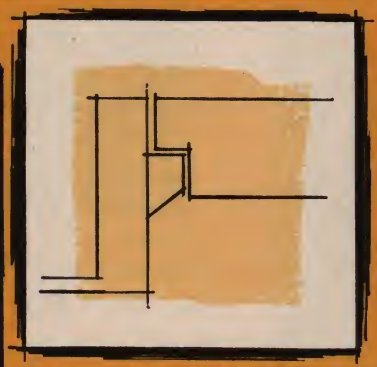
800 BERGEN AVENUE
HARRISON, NEW JERSEY

phone: HUmbolt 3-5480
REctor 2-9714 (NEW YORK CITY)

©



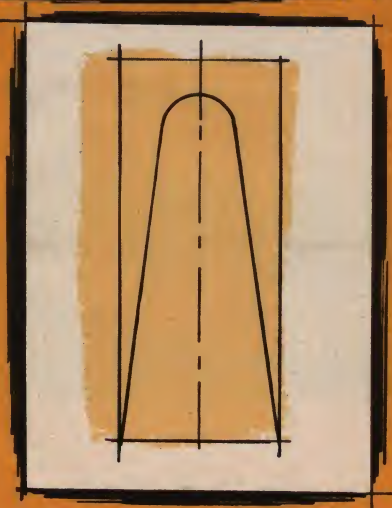




FLOCKHART







manhole frames	1
inlet frames	2
catch basin frames	3
troughs	4
trench frames	5
airport castings	6
armored concrete	7
wheel guards	8
leader shoes	9
related products	10

FLOCKHART FOUNDRY COMPANY
NEWARK, NEW JERSEY

all the recent advancements in design, metallurgy and manufacture

FLOCKHART castings—manhole frames, covers and gratings . . . inlet and catch basin frames . . . troughs and trench frames . . . armored concrete guards—all these products are backed by over 80 years of experience concentrated entirely on construction castings. *Yet, they incoporate all the recent advancements in design . . . in metallurgy . . . in manufacture.* In fact, FLOCKHART castings are especially designed, specifically formulated to meet the stringent requirements of federal, state and municipal agencies, housing developments, large manufacturing plants, institutions—wherever strong, durable, corrosion-resisting castings . . . *quality* castings with a meaningful guarantee . . . are required.

finest quality grey iron

FLOCKHART castings shown in this catalog, unless otherwise specified, are made of the finest quality grey cast iron: ASTM specification A-48 (latest revision), class 30; this formulation produces a minimum ultimate strength of 30,000 psi and is highly resistant to corrosion and abrasion. These castings are also available, on order, in other metals—ductile iron, cast steel, bronze, aluminum (see back cover).

how to order

FLOCKHART castings are easy to order. Within each major "family" of castings—manhole frames, for example—each group is assigned a *type* number (such as type 600). Then, within each group, each flange—is given its own individual *code* number (such as 62000). Consequently, in ordering practically all FLOCKHART castings in this catalog, it is necessary to give only two numbers: the *type* number of the group, and the *code* number of the desired combination of variables.

FLOCKHART *castings are furnished* non-*painted. Experience shows that painting only conceals any imperfections in the casting.*

FLOCKHART Foundry Company
Newark, New Jersey

Copyright 1959, Flockhart Foundry Company

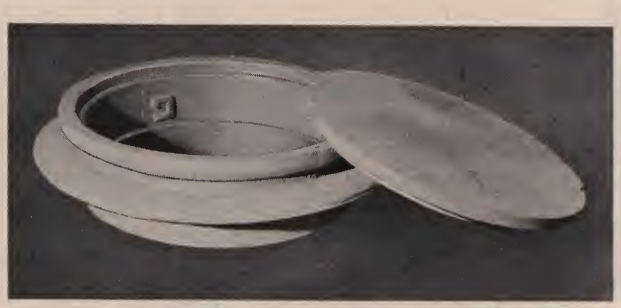
1 manhole frames

with cover or grating

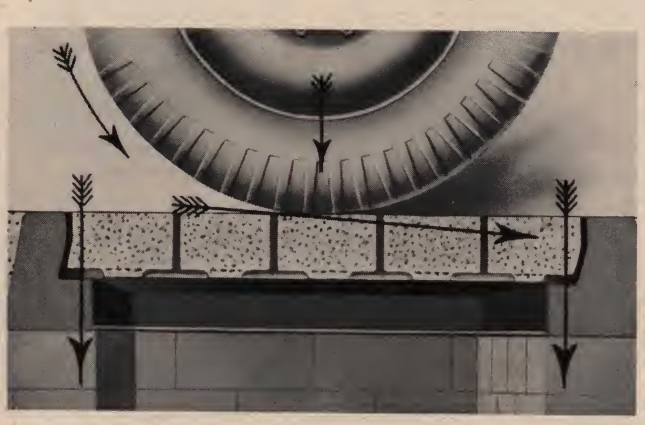
Flockhart manhole frames, with their covers or gratings, are well-known for their inherent strength, their guaranteed dependability, their stout resistance to corrosion, time, traffic—and for their wide adaptability. The reason Flockhart manhole frames can be used on so many diversified types of applications is the variety of constructions, forms and sizes in which they are available. Not only are these *quality* castings made in the usual standard and surface-water-tight styles—but they are regularly furnished in complete "families" designed to perform specific functions: to be *tight* against hydrostatic or gas pressure . . . to be *proof* against rocking, tampering, even vermin . . . .

Consequently, in this catalog, Flockhart manhole frames are divided *by function*—as indicated in the selector guide at far right. Further, to facilitate comparison of the various constructions, the basic structure of each group is shown in a simplified diagram.

Many variations of these manhole frames, covers and gratings are available—as listed and numbered at right. In turn, the variations possible with each style of frame are indicated by related number.







	section
watertight	1a
watertight • inner cover	1b
hydrostatic and gas pressure tight	1c
standard	1d
valve box type	1e
non-rocking	1f
hinged cover	1g
manhole steps	1h

variations from standard

1 depth and flange dimensions
2 covers for concrete fill
3 horizontal, vertical milling
4 horizontal milling
5 flush lift rings
6 drop lift handles
7 lock operated externally
8 lock operated internally
9 cast aluminum cover or grating
10 steel plate cover
11 grating cover
12 aluminum plate
13 concentric covers
14 square flange
15 lettering on cover
16 cast bronze
17 asbestos gasket
18 cast steel cover
19 ductile iron cover or grating

guarantee

Any casting designated ROADWAY which may break in roadway service within a period of ten years from date of invoice will be replaced gratis, fob nearest railroad station.

special manhole frames

spark-proof frames and covers

frost-proof covers, water-shedding covers, hinged and watertight covers, covers for concrete fill (for manholes and trenches)

bee-hive grating for catch basins, gratings for bell end of pipes

watertight — surface water only • single cover

● circular: type 600 • ROADWAY, WALKWAY



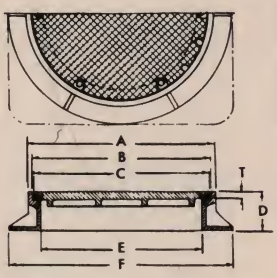
¼-in. flat rubber gasket between milled bearing surfaces; silicon bronze cap screws

variations: 1, 2, 5, 9, 15, 16, 17, 18, 19 (page 3)

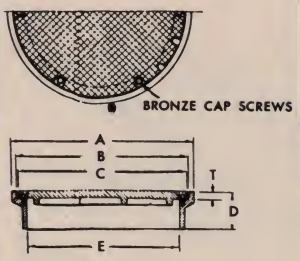
guarantee: ROADWAY types for 10 years

ordering: specify both type number (600–) and code number (from table)

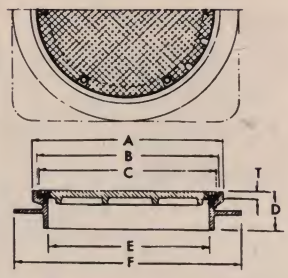
for pit type 600-C



for slab type 600-CD



for waterproof slab type 600-CE

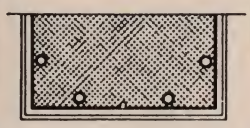


E	A	B	D•	F	C	T	for pit 600-C: circular flange roadway	for pit 600-C: circular flange walkway	for pit 600-C: square flange roadway	for pit 600-C: square flange walkway	for slab 600-CD: roadway	for slab 600-CD: walkway	for waterproof slab 600-CE: circular flange roadway	for waterproof slab 600-CE: circular flange walkway	for waterproof slab 600-CE: square flange roadway	for waterproof slab 600-CE: square flange walkway
6	12	10	8	20	9⅞	1¼	62000	62001	62002	62003	62004	62005	62006	62007	62008	62009
12	18	16	8	26	15⅞	1¼	62010	62011	62012	62013	62014	62015	62016	62017	62018	62019
18	24	22	8	32	21⅞	1¼	62020	62021	62022	62023	62024	62025	62026	62027	62028	62029
24	30	28	8	38	27⅞	1¼	62030	62031	62032	62033	62034	62035	62036	62037	62038	62039
27	33	31	8	41	30⅞	1¼	62040	62041	62042	62043	62044	62045	62046	62047	62048	62049
30	36	34	8	44	33⅞	1½	62050	62051	62052	62053	62054	62055	62056	62057	62058	62059
33	39	37	8	47	36⅞	1½	62060	62061	62062	62063	62064	62065	62066	62067	62068	62069
36	42	40	8	50	39⅞	1½	62070	62071	62072	62073	62074	62075	62076	62077	62078	62079
40	46	44	8	54	43⅞	1½	62080	62081	62082	62083	62084	62085	62086	62087	62088	62089
42	48	46	8	56	45⅞	1½	62090	62091	62092	62093	62094	62095	62096	62097	62098	62099
48	54	52	8	62	51⅞	1½	62100	62101	62102	62103	62104	62105	62106	62107	62108	62109
54	60	58	8	68	57⅞	3	62110	62111	62112	62113	62114	62115	62116	62117	62118	62119
60	66	64	8	74	63⅞	3	62120	62121	62122	62123	62124	62125	62126	62127	62128	62129

• May be varied as desired

■ square: type 640 • ROADWAY, WALKWAY





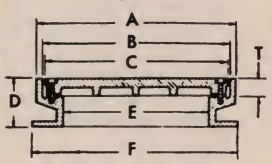
¾-in. diameter rubber gasket; silicon bronze cap screw

variations: 1, 2, 3, 4, 5, 7, 9, 15, 16, 18, 19 (page 3)

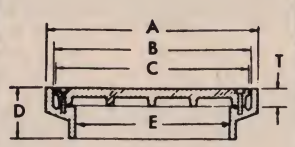
guarantee: ROADWAY types for 10 years

ordering: specify both type number (640–) and code number (from table)

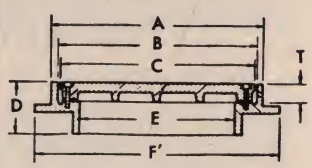
for pit type 640-C



for slab type 640-CD



for waterproof slab type 640-SR

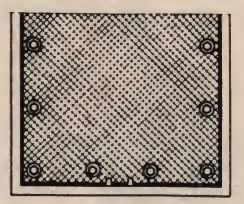


E	A	B	C	F	F■	D•	T	for pit 640-C: roadway	for pit 640-C: walkway	for slab 640-CD: roadway	for slab 640-CD: walkway	for waterproof slab 640-SR: roadway	for waterproof slab 640-SR: walkway
6	15	13	12¾	20	16	8	3	24900	24901	24902	24903	24904	24905
12	21	19	18¾	26	22	8	3	24906	24907	24908	24909	24910	24911
18	27	25	24¾	32	28	8	3	24912	24913	24914	24915	24916	24917
20	29	27	26¾	34	30	8	3	24918	24919	24920	24921	24922	24923
24	33	31	30¾	38	34	8	3	24924	24925	24926	24927	24928	24929
27	36	34	33¾	41	37	8	3	24930	24931	24932	24933	24934	24935
30	39	37	36¾	44	40	8	3	24936	24937	24938	24939	24940	24941
33	42	40	39¾	47	43	8	3	24942	24943	24944	24945	24946	24947
36	45	43	42¾	50	46	8	3	24948	24949	24950	24951	24952	24953
42	51	49	48¾	56	52	8	3	24954	24955	24956	24957	24958	24959
48	57	55	54¾	62	58	8	3	24960	24961	24962	24963	24964	24965
54	63	61	60¾	68	64	8	3	24966	24967	24968	24969	24970	24971
60	69	67	66¾	74	70	8	3	24972	24973	24974	24975	24976	24977

• May be varied as desired
■ Refers to type 640-SR only

rectangular: type 656 • ROADWAY, WALKWAY





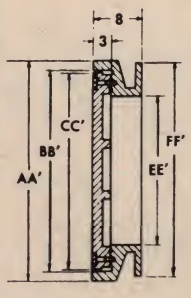
¾-in. diameter rubber gasket; silicon bronze cap screws

variations: 1, 3, 4, 5, 9, 15, 16, 18, 19 (page 3)

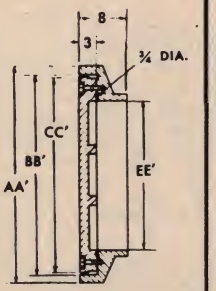
guarantee: ROADWAY types for 10 years

ordering: specify both type number (656–) and code number (from table)

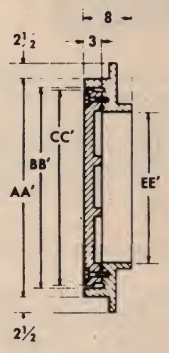
for pit type 656-C



for slab type 656-CD

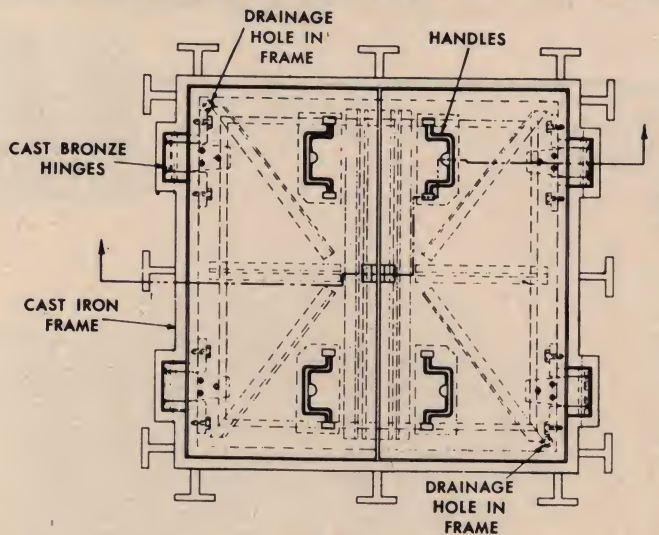


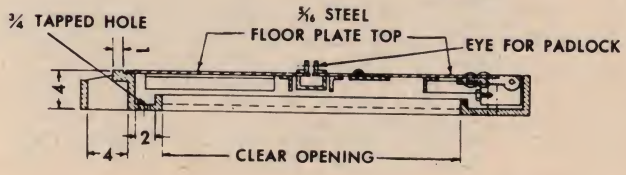
for waterproof slab type 656-SR



E	E'	A	A'	B	B'	C	C'	F	F'	for pit type 656-C roadway	for pit type 656-C walkway	for slab type 656-CD roadway	for slab type 656-CD walkway	for waterproof slab type 656-SR roadway	for waterproof slab type 656-SR walkway
6	12	15	21	13	19	12¾	18¾	16	22	22600	22601	22602	22603	22604	22605
12	24	21	33	19	31	18¾	30¾	22	34	22606	22607	22608	22609	22610	22611
18	36	27	45	25	43	24¾	42¾	28	46	22612	22613	22614	22615	22616	22617
20	40	29	49	27	47	26¾	46¾	30	50	22618	22619	22620	22621	22622	22623
24	48	33	57	31	55	30¾	54¾	34	58	22624	22625	22626	22627	22628	22629
27	54	36	63	34	61	33¾	60¾	37	64	22630	22631	22632	22633	22634	22635
30	60	39	69	37	67	36¾	66¾	40	70	22636	22637	22638	22639	22640	22641
33	66	42	75	40	73	39¾	72¾	43	76	22642	22643	22644	22645	22646	22647
36	72	45	81	43	79	42¾	78¾	46	82	22648	22649	22650	22651	22652	22653
40	80	49	89	47	87	46¾	86¾	50	90	22654	22655	22656	22657	22658	22659
42	84	51	93	49	91	48¾	90¾	52	94	22660	22661	22662	22663	22664	22665
48	96	57	105	55	103	54¾	102¾	58	106	22666	22667	22668	22669	22670	22671
54	108	63	117	61	115	60¾	114¾	64	118	22672	22673	22674	22675	22676	22677
60	120	69	129	67	127	66¾	126¾	70	130	22678	22679	22680	22681	22682	22683

with hinged doors • type 670 • WALKWAY





variations: provision for internal lock; special sizes as required; ROADWAY installation data on request

ordering: specify both type number (670) and code number (from table); state number of door panels required and sides on which hinges are located; state variations, if any, required

opening, in.		plate cover steel	plate cover aluminum	opening, in.		plate cover steel	plate cover aluminum
24	24	33650	16500	54	54	33665	16515
	36	33651	16501		81	33666	16516
	48	33652	16502		108	33667	16517
30	30	33653	16503	60	60	33668	16518
	45	33654	16504		90	33669	16519
	60	33655	16505		120	33670	16520
36	36	33656	16506	66	66	33671	16521
	54	33657	16507		99	33672	16522
	72	33658	16508		132	33673	16523
42	42	33659	16509	72	72	33674	16524
	63	33660	16510		108	33675	16525
	84	33661	16511		144	33676	16526
48	48	33662	16512				
	72	33663	16513				
	96	33664	16514				

b watertight • *inner cover sealed and locked* ROADWAY, WALKWAY

● circular: type 601



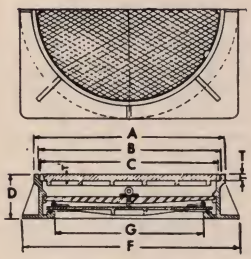
¾-in. diameter rubber gasket; silicon bronze cap screw; steel locking bar

variations: when specified, both covers may be made in two concentric parts; 1, 3, 4, 5, 6, 9, 13, 14, 15, 16, 18, 19 (page 3)

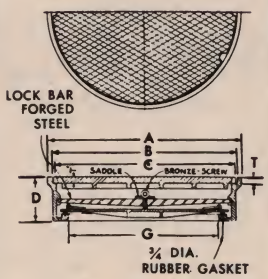
guarantee: ROADWAY types for 10 years

ordering: specify both type number (601–) and code number (from table)

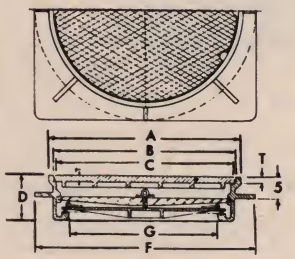
for pit type 601-A



for slab type 601-RA



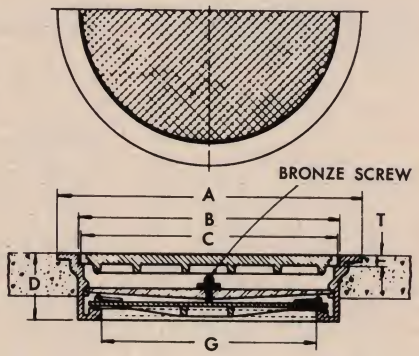
for waterproof slab type 601-SA



frame					cover		circular flange		square flange				circular flange		square flange	
G	A	B	D	F	C	T	roadway	walkway	roadway	walkway	roadway	walkway	roadway	walkway	roadway	walkway
6	16¼	13¼	10	23	13	1¼	62300	62301	62302	62303	62304	62305	62306	62307	62308	62309
12	22¼	19¼	10	29	19	1¼	62310	62311	62312	62313	62314	62315	62316	62317	62318	62319
20	30¼	27¼	10	37	27	1¼	62320	62321	62322	62323	62324	62325	62326	62327	62328	62329
24	34¾	31¾	10	40½	31½	1¼	62330	62331	62332	62333	62334	62335	62336	62337	62338	62339
27	36½	33½	11	43½	33¼	1½	62340	62341	62342	62343	62344	62345	62346	62347	62348	62349
30	39½	36½	11	46½	36¼	1½	62350	62351	62352	62353	62354	62355	62356	62357	62358	62359
31	41¼	38¼	11	47	38	1½	62360	62361	62362	62363	62364	62365	62366	62367	62368	62369
36	47	44	10	52½	43⅝	1½	62370	62371	62372	62373	62374	62375	62376	62377	62378	62379
40	51	48	10	55½	47⅝	1½	62380	62381	62382	62383	62384	62385	62386	62387	62388	62389
42	53	50	10	57½	49⅝	1½	62390	62391	62392	62393	62394	62395	62396	62397	62398	62399
48	58	55	10	63	54⅝	1½	62400	62401	62402	62403	62404	62405	62406	62407	62408	62409
54	64⅝	61⅝	10	68	61	3	62410	62411	62412	62413	62414	62415	62416	62417	62418	62419
60	70⅝	67⅝	10	74	67	3	62420	62421	62422	62423	62424	62425	62426	62427	62428	62429

● Circular: type 477 for shallow slab construction





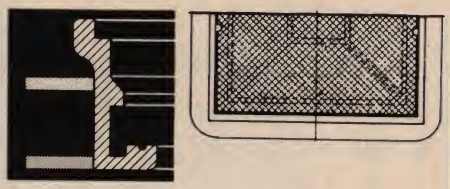
¾-in. diameter rubber gasket; silicon bronze cap screw; steel locking bar

guarantee: ROADWAY types for 10 years

ordering: specify both type number (477) and code number (from table)

frame				cover			
G	A	B	D	C	T	roadway	walkway
6	21¼	13¼	10	13	1¼	23240	23241
12	27¼	19¼	10	19	1¼	23242	23243
20	35¼	27¼	10	27	1¼	23244	23245
24	39¾	31¾	10	31½	1¼	23246	23247
27	41½	33½	11	33¼	1½	23248	23249
30	44½	36½	11	36¼	1½	23250	23251
31	46¼	38¼	11	38	1½	23252	23253
36	52	44	10	43⅝	1½	23254	23255
40	56	48	10	47⅝	1½	23256	23257
42	58	50	10	49⅝	1½	23258	23259
48	63	55	10	54⅝	1½	23260	23261
54	69⅝	61⅝	10	61	3	23262	23263
60	75⅝	67⅝	10	67	3	23264	23265

square: type 602



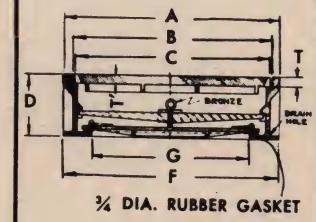
¾-in. diameter rubber gasket; silicon bronze cap screw; steel locking bar

variations: when specified, outside cover may be made in two equal and identical parts; 1, 3, 4, 5, 6, 9, 13, 15, 16, 18, 19 (page 3)

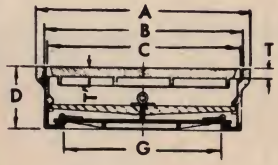
guarantee: ROADWAY types for 10 years

ordering: specify both type number (602–) and code number (from table)

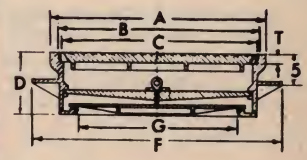
for pit type 602-A



for slab type 602-RA



for waterproof slab type 602-SA



G	A	B	D	F	C	T	for pit type 602-A roadway	for pit type 602-A walkway	for slab type 602-RA roadway	for slab type 602-RA walkway	for waterproof slab type 602-SA roadway	for waterproof slab type 602-SA walkway
6	17	14	10	22½	13¾	1½	62500	62501	62502	62503	62504	62505
12	23	20	10	28½	19¾	1½	62506	62507	62508	62509	62510	62511
18	29	26	10	34½	25¾	1½	62512	62513	62514	62515	62516	62517
20	31	28	10	36½	27¾	1½	62518	62519	62520	62521	62522	62523
24	35	32	10	40½	31¾	1½	62524	62525	62526	62527	62528	62529
27	38	35	10	43½	34¾	1½	62530	62531	62532	62533	62534	62535
30	41	38	10	46½	37¾	1½	62536	62537	62538	62539	62540	62541
33	44	41	10	49½	40¾	1½	62542	62543	62544	62545	62546	62547
36	47	44	10	52½	43⅞	1½	62548	62549	62550	62551	62552	62553
40	51	48	10	55½	47⅞	1½	62554	62555	62556	62557	62558	62559
42	53	50	10	57½	49⅞	1½	62560	62561	62562	62563	62564	62565
48	59	56	10	63½	55⅞	1½	62566	62567	62568	62569	62570	62571
54	65	62	10	69½	61⅞	3	62572	62573	62574	62575	62576	62577
60	71	68	10	75½	67⅞	3	62578	62579	62580	62581	62582	62583

rectangular: type 641



with cover for pit construction

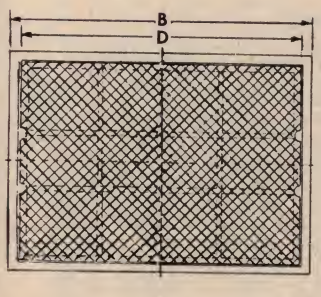
¾-in. diameter rubber gasket; silicon bronze cap screws; steel locking bar

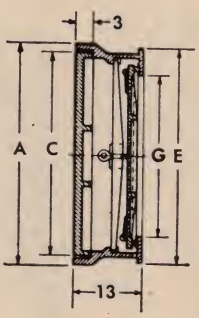
variations: 1, 2, 3, 4, 5, 7, 9, 15, 16, 18, 19 (page 3)

guarantee: ROADWAY types for 10 years

ordering: specify both type number (641) and code number (from table)

variations: 1, 3, 4, 5, 9, 15, 16, 18, 19 (page 2)





opening, in. G	opening, in. H	A	B	E	F	C	D	roadway	walkway
6	9	17	20	16	19	13¾	16¾	24500	24501
12	18	23	29	22	28	19¾	25¾	24506	24507
18	27	29	38	28	37	25¾	34¾	24512	24513
20	30	31	41	30	40	27¾	37¾	24518	24519
24	36	35	47	34	46	31¾	43¾	24524	24525
27	40½	38	51½	37	50½	34¾	48¼	24530	24531
30	45	41	56	40	55	37¾	52¾	24536	24537
33	49½	44	60½	43	59½	40¾	57¼	24542	24543
36	54	47	65	46	64	43⅞	61⅞	24548	24549
40	60	51	71	50	70	47⅞	67⅞	24554	24555
42	63	53	74	52	73	49⅞	70⅞	24560	24561
48	72	59	83	58	82	55⅞	79⅞	24566	24567
54	81	65	92	64	91	61⅞	88⅞	24572	24573
60	90	71	101	70	100	67⅞	97⅞	24578	24579

C

hydrostatic and gas pressure tight

ROADWAY, WALKWAY

● circular: *hydrostatic pressure*, type 659; *gas pressure*, type 464



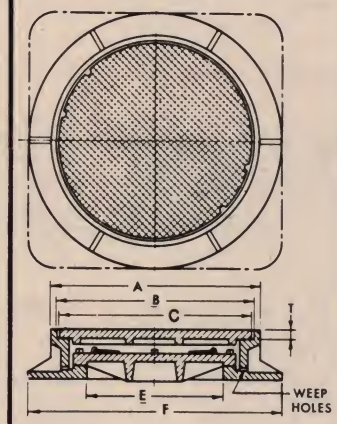
1-in. diameter holes in flange for anchor bolts, number as required (provision should be made for anchoring frame flange to structure)

frame: cast iron

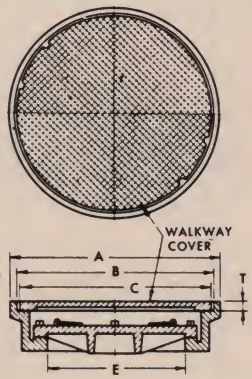
guarantee: ROADWAY types for 10 years

ordering: specify both type number and code number (from table)

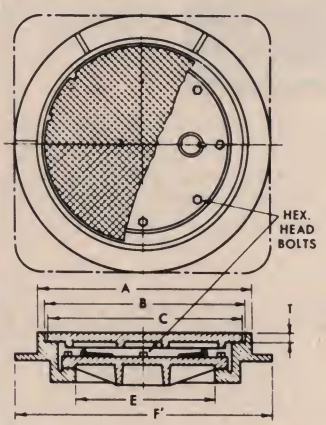
for pit



for slab



for waterproof slab



hydrostatic pressure

dimensions based on 250 psi

inner cover: ductile iron

outer cover: ▲

E	A	B	C	F	F'	D	T	type 659-CX circular flange roadway	type 659-CX circular flange walkway	type 659-CX square flange roadway	type 659-CX square flange walkway	type 659-CZ circular flange roadway	type 659-CZ circular flange walkway	type 659-CZ square flange roadway	type 659-CZ square flange walkway
18	30	28	27¾	34	38	8	1¼	22040	22041	22042	22043	22046	22047	22048	22049
21	33	31	30¾	37	41	8	1¼	22050	22051	22052	22053	22056	22057	22058	22059
24	36	34	33¾	40	44	8	1½	22060	22061	22062	22063	22066	22067	22068	22069
27	39	37	36¾	43	47	8	1½	22070	22071	22072	22073	22076	22077	22078	22079
30	42	40	39¾	46	50	8	1½	22080	22081	22082	22083	22086	22087	22088	22089
33	46	44	43¾	50	54	8	1½	22090	22091	22092	22093	22096	22097	22098	22099
35	48	46	45¾	52	56	8	1½	22100	22101	22102	22103	22106	22107	22108	22109
37	51	49	48¾	55	59	8	1½	22110	22111	22112	22113	22116	22117	22118	22119
40	54	52	51¾	58	62	10	2½	22120	22121	22122	22123	22126	22127	22128	22129
46	60	58	57¾	64	68	10	2½	22130	22131	22132	22133	22136	22137	22138	22139
52	66	64	63¾	70	74	10	2½	22140	22141	22142	22143	22146	22147	22148	22149

gas pressure

both covers: ▲

dimensions based on 45 psi uplift pressure

E	A	B	C	F	F'	D	T	type 464-CX circular flange roadway	type 464-CX circular flange walkway	type 464-CX square flange roadway	type 464-CX square flange walkway	type 464-CY roadway	type 464-CY walkway	type 464-CZ circular flange roadway	type 464-CZ circular flange walkway	type 464-CZ square flange roadway	type 464-CZ square flange walkway
18	30	28	27¾	34	38	8	1¼	36790	36791	36792	36793	36794	36795	36796	36797	36798	36799
21	33	31	30¾	37	41	8	1¼	36800	36801	36802	36803	36804	36805	36806	36807	36808	36809
24	36	34	33¾	40	44	8	1½	36810	36811	36812	36813	36814	36815	36816	36817	36818	36819
27	39	37	36¾	43	47	8	1½	36820	36821	36822	36823	36824	36825	36826	36827	36828	36829
30	42	40	39¾	46	50	8	1½	36830	36831	36832	36833	36834	36835	36836	36837	36838	36839
33	46	44	43¾	50	54	8	1½	36840	36841	36842	36843	36844	36845	36846	36847	36848	36849
35	48	46	45¾	52	56	8	1½	36850	36851	36852	36853	36854	36855	36856	36857	36858	36859
37	51	49	48¾	55	59	8	1½	36860	36861	36862	36863	36864	36865	36866	36867	36868	36869
40	54	52	51¾	58	62	10	2½	36870	36871	36872	36873	36874	36875	36876	36877	36878	36879
46	60	58	57¾	64	68	10	2½	36880	36881	36882	36883	36884	36885	36886	36887	36888	36889
52	66	64	63¾	70	74	10	2½	36890	36891	36892	36893	36894	36895	36896	36897	36898	36899

▲ E 40 in. and smaller, cast iron; E over 40 in., ductile iron

standard ● circular

for pit construction



with cover or grating

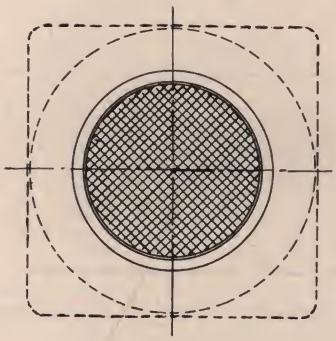
ROADWAY: type 684
WALKWAY: type 618

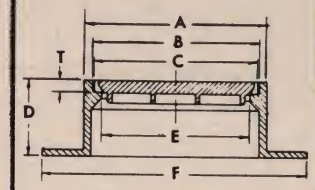
for sanitary and storm manholes in municipalities, housing developments, schools, manufacturing plants, parking lots; built for heavy duty; economical

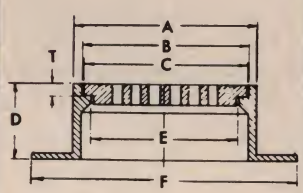
variations: 1, 2, 3, 4, 5, 6, 7, 8, 14, 15, 18, 19 (page 3)

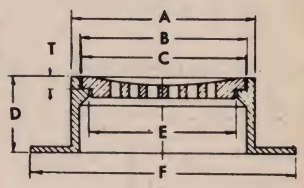
guarantee: ROADWAY types for 10 years

ordering: specify both type number and code number (from table); also specify plane or concave grating









E	A	B	C	D	F	T	with cover: circular flange	with cover: square flange	with plane grating: circular flange	with plane grating: square flange	with concave grating: circular flange	with concave grating: square flange
roadway: type 684												
10¾	14	12¼	12	8	17	1¼	63300	63301	63302	63303	63304	63305
15	18¾	16¾	16½	8	27	1¼	63306	63307	63308	63309	63310	63311
18	21¼	20½	20	8	29	1½	63312	63313	63314	63315	63316	63317
22	26	24¼	24	7	32	1¼	63318	63319	63320	63321	63322	63323
22	26	24¼	24	8	32	1¼	63324	63325	63326	63327	63328	63329
24	28	26	25¾	6	34	1½	63330	63331	63332	63333	63334	63335
24	28	26	25¾	8	34	1½	63336	63337	63338	63339	63340	63341
24	28	26	25¾	9¼	34	1½	63342	63343	63344	63345	63346	63347
27	31	29	28¾	7	37	1⅜	63348	63349	63350	63351	63352	63353
30	34	32	31¾	6½	40	1½	63354	63355	63356	63357	63358	63359
30	34½	32½	32	8	40	1½	63360	63361	63362	63363	63364	63365
36	40½	38	37¾	7	46	1½	63366	63367	63368	63369	63370	63371
42	46	44	43¾	8	52	1½	63372	63373	63374	63375	63376	63377
48	52	50	49¾	8	58	1½	63378	63379	63380	63381	63382	63383
54	58	56	55¾	8	64	1½	63384	63385	63386	63387	63388	63389
60	64	62	61¾	8	70	1½	63390	63391	63392	63393	63394	63395
walkway: type 618												
8	11½	10	9¾	8	16½	1	61304	61305	61302	61303	61300	61301
12	16	14½	14	6	23	1	61310	61311	61308	61309	61306	61307
18¾	22½	20¾	20½	5	29	1	61316	61317	61314	61315	61312	61313
22	25¼	24¼	24	6	36	1⅛	61322	61323	61320	61321	61318	61319
22	26	24¼	24	6	44	1⅛	61324	61325	...	...	...	...
24	28	26¼	26	6	34	1	61330	61331	61328	61329	61326	61327
28	31⅛	30¼	30	4½	39¼	¾	61336	61337	61334	61335	61332	61333
30	34	32¼	32	6	43	1¼	61342	61343	61340	61341	61338	61339
34	37	36	35¾	5¼	46	1⅛	61348	61349	61346	61347	61344	61345
36	39½	38	37¾	4¾	48	1¼	61354	61355	61352	61353	61350	61351
42	45½	44	43¾	6	54	1¼	61360	61361	61358	61359	61356	61357
48	51½	50	49¾	6	58	1¼	61366	61367	61364	61365	61362	61363

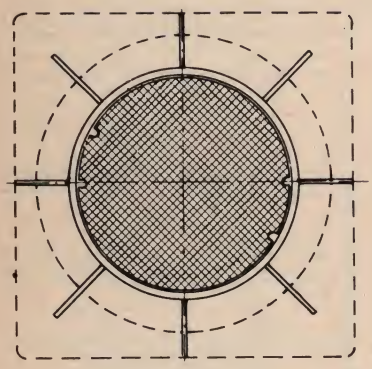
d standard ● circular

for pit construction (continued)



ROADWAY, WALKWAY

with cover type 615



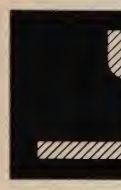
furnished with either square or round flange

variations: 1, 3, 4, 5, 6, 7, 8, 9, 11, 15, 16, 18, 19 (page 3)

guarantee: ROADWAY types for 10 years

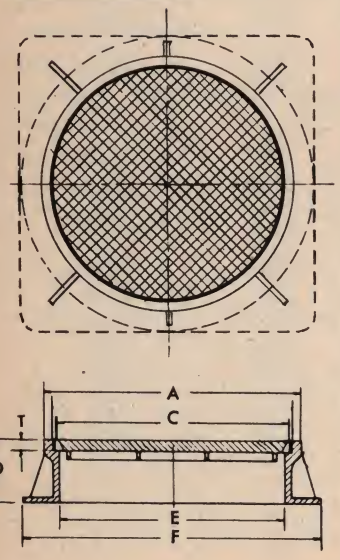
ordering: specify both type number (615) and code number (from table); also specify plane or concave grating

E	A	B	C	F	T	circular flange	square flange
roadway							
24	28	26	25¾	43	1⅜	60880	60881
27	31	29	28¾	46	1⅜	60882	60883
30	34	32	31¾	49	1⅜	60884	60885
36	40½	38½	38	55	1½	60892	60893
42	47	44	43¾	61	1½	60996	60997
walkway							
24	28	26	25¾	43	¾	60886	60887
27	31	29	28¾	46	¾	60888	60889
30	34	32	31¾	49	¾	60890	60891
36	40½	38½	38	55	1½	60894	60895
42	47	44	43¾	61	1½	60998	60999



ROADWAY

with cover type 604



furnished with either square or round flange

variations: 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 18, 19 (page 3)

guarantee: 10 years

ordering: specify both type number (604) and code number (from table)

E	A	C	D•	F	T	circular flange	square flange
15¾	19½	17½	8	24	1	60461	60450
24	28½	26	6	38	1½	60462	60451
24	28½	26	8	38	1½	60463	60452
26½	31	28¼	10	37	1¼	60464	60453
30	34½	32	8	44	1½	60465	60454
30	35½	32¼	12	46	1½	60466	60455
34	39½	36¼	11	46½	1½	60467	60456
36	41⅛	37⅞	8	48	1½	60468	60457
36	42½	38¼	12	48	2	60469	60458
42	46¾	44½	10	58	3	60470	60459
48	53	49⅝	10	57¼	1½	60471	60460

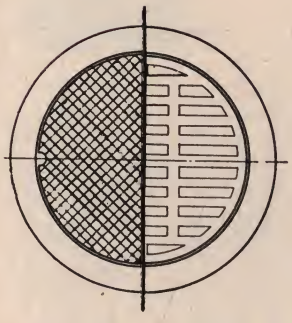
• May be varied as desired

for slab construction



with cover or grating

ROADWAY: **type 612**
WALKWAY: **type 630**

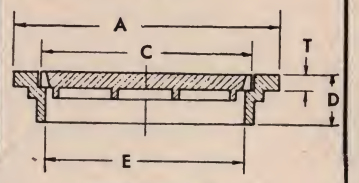


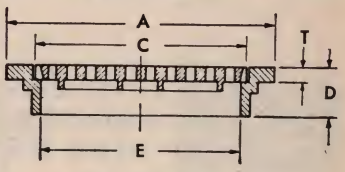
flanges may be increased to any desired square, rectangle or circle; dimension D may be varied as desired

variations: 1, 3, 4, 5, 6, 7, 8, 9, 10, 18, 19 (page 3)

guarantee: ROADWAY types for 10 years

ordering: specify both type number and code number (from table); also specify proper depth



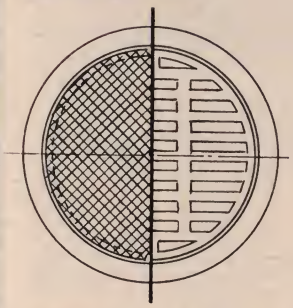


E	A	C	T	with cover: depth, D, in. = 4½	6	8	10	12	with plane grating: depth, D, in. = 4½	6	8	10	12
roadway: type 612													
6	12	8	1	61905	61906	61907	61908	61909	61900	61901	61902	61903	61904
9	15	11	1	61915	61916	61917	61918	61919	61910	61911	61912	61913	61914
12	19	14	1	61925	61926	61927	61928	61929	61920	61921	61922	61923	61924
16	22	18	1¼	61935	61936	61937	61938	61939	61930	61931	61932	61933	61934
18	24	19	1⅜	61945	61946	61947	61948	61949	61940	61941	61942	61943	61944
20	28½	23	1¼	61955	61956	61957	61958	61959	61950	61951	61952	61953	61954
24	32½	26	1½	61965	61966	61967	61968	61969	61960	61961	61962	61963	61964
30	36½	32	1½	61975	61976	61977	61978	61979	61970	61971	61972	61973	61974
36	42½	38	1½	61985	61986	61987	61988	61989	61980	61981	61982	61983	61984
42	50	44	1½	61995	61996	61997	61998	61999	61990	61991	61992	61993	61994
48	56	50	1½	63205	63206	63207	63208	63209	63200	63201	63202	63203	63204
54	62	56	1½	63215	63216	63217	63218	63219	63210	63211	63212	63213	63214
60	68	62	2	63225	63226	63227	63228	63229	63220	63221	63222	63223	63224
walkway: type 630													
6	12	8	1	62800	62801	62802	62803	62804	62805	62806	62807	62808	62809
9	15	11	1	62810	62811	62812	62813	62814	62815	62816	62817	62818	62819
12	19	14	1	62820	62821	62822	62823	62824	62825	62826	62827	62828	62829
16	22	18	1¼	62830	62831	62832	62833	62834	62835	62836	62837	62838	62839
18	24	19	1⅜	62840	62841	62842	62843	62844	62845	62846	62847	62848	62849
20	28½	23	1¼	62850	62851	62852	62853	62854	62855	62856	62857	62858	62859
24	32½	26	1½	62860	62861	62862	62863	62864	62865	62866	62867	62868	62869
30	36½	32	1½	62870	62871	62872	62873	62874	62875	62876	62877	62878	62879
36	42½	38	1½	62880	62881	62882	62883	62884	62885	62886	62887	62888	62889
42	50	44	1½	62890	62891	62892	62893	62894	62895	62896	62897	62898	62899
48	56	50	1½	62900	62901	62902	62903	62904	62905	62906	62907	62908	62909
54	62	56	1½	62910	62911	62912	62913	62914	62915	62916	62917	62918	62919
60	68	62	2	62920	62921	62922	62923	62924	62925	62926	62927	62928	62929



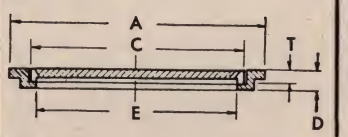
with cover or grating

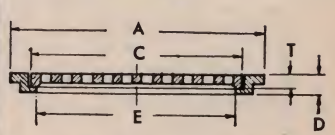
WALKWAY:
type 621



variations: 1, 3, 4, 5, 6, 9, 10, 15, 16, 18, 19 (page 3)

ordering: specify both type number (621) and code number (from table)





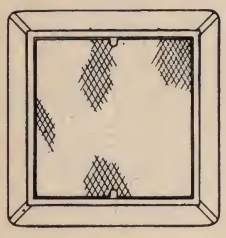
E	A	C	D	T	with cover	with grating: plane	with grating: concave
6	10	7	1⅞	¾	60000	60002	60001
9	13	10	1⅞	¾	60003	60005	60004
12	16	13	1⅞	¾	60006	60008	60007
16	20¼	17	1⅞	¾	60009	60011	60010
18	22¼	19	1⅞	¾	60012	60014	60013
20	24	21	1⅞	1¼	60015	60017	60016
24	28	25	1⅞	1¼	60018	60020	60019
27	31	28¼	1⅞	1¼	60021	60023	60022
30	34½	31	1⅞	1¼	60024	60026	60025
32	38	34	2½	1½	60027	60029	60028
36	41	37¾	2	1¼	60030	60032	60031
42	47	43¾	2	1¼	60033	60035	60034
48	53	49¾	2	1¼	60036	60038	60037
54	59	55¾	2	1¼	60039	60041	60040

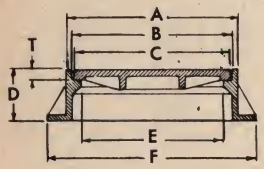
d | **standard** ■ **square**

for pit construction



ROADWAY: with cover type 290





variations: 1, 7, 8, 9, 10, 11, 13, 15, 19 (page 3)

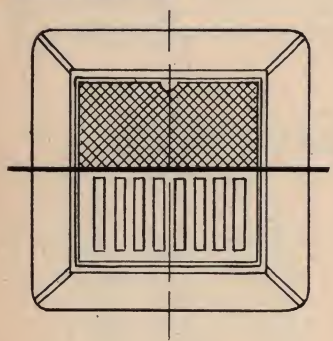
guarantee: ten years

ordering: specify both type number (290) and code number (from table)

frame							cover	frame							cover
E	D	F	A	B	C	T		E	D	F	A	B	C	T	
6	5	14	9¼	8	7¾	1	26930	24	6	33	27¾	26	25¾	1¼	35108
8½	5	13¾	11¼	10¼	10	2⅝	37885	24	8	35	27½	26	25¾	1½	26393
9½	9⅝	21½	12½	11½	11¼	3	25406	26	10	36	29	27½	27¼	3	35800
11½	9	20	14	13¼	13	2½	25404	27½	11½	40	32	30	29½	1⅜	25597
16	5	26	19½	18	17¾	1¼	29655	30	6¼	41	33¾	32¼	32	2	39635
18	6	28	21¾	20	19¾	2	33916	32	4	44	36	34¼	34	1	28238
18	8	32	21¾	20	19¾	2	34968	34	7	44	37¾	36	35¾	1½	35726
21¼	8	36	25¾	24	23¾	1½	29595	34	8½	46	38¼	36¼	36	1¼	26338
22	4½	33½	26¼	24¼	24	1¾	29679	36	7	46	40	38	37¾	1½	20303
22	5	32¼	26¾	24¼	24	1¾	23994	36	8	48	40	38	37¾	1½	39636
22	6	36	27	24¼	24	1⅜	34921	40	5	50	44	42	41¾	1½	18706
22	8	40	27	24¼	24	1¾	25914	42	5	52	46	44	43¾	1½	18707
23	4	36¼	25¼	24¼	24	1¼	30411	48	5	57	52	50	49⅜	1½	26021
24	6	28	21¾	20	19¾	2	33679	48	8	58	52	50	49¾	1½	39367



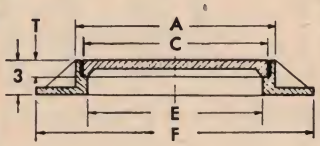
WALKWAY: with cover or grating type 619

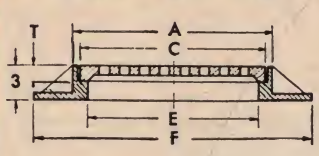


depth of casting and flange dimensions may be varied as desired; lock operated if specified

variations: 1, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16 (page 3)

ordering: specify both type number (619) and code number (from table)



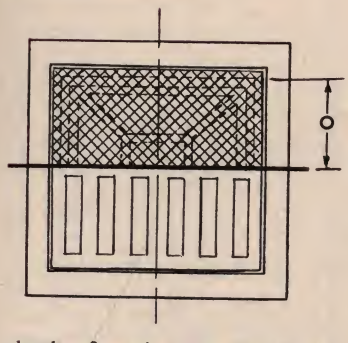


E	A	F	C	T	with cover	with plane grating
6	8½	12	7¼	1¼	61201	61200
8	10½	14	9¼	1¼	61203	61202
10	12½	16	11¼	1½	61205	61204
12	14½	18	13¼	1½	61207	61206
14	16½	20	15¼	1½	61209	61208
16	18½	22	17¼	1½	61211	61210
18	20½	24	19¼	1½	61213	61212
20	22½	26	21¼	1½	61215	61214
22	24½	28	23¼	1½	61217	61216
24	26½	30	25¼	1½	61219	61218
26	29	32	27¼	1½	61221	61220
28	31	34	29¼	1½	61223	61222
30	33	36	31¼	1½	61225	61224
32	35	38	33¼	1½	61227	61226
34	37	40	35¼	1½	61229	61228
36	39	42	37¼	1½	61231	61230
42	45	48	43¼	1½	61233	61232
48	51	54	49¼	1½	61235	61234
54	57	60	55¼	1½	61237	61236
60	63	66	61¼	1½	61239	61238
66	69	72	67¼	1½	61241	61240
72	75	78	73¼	1½	61243	61242

for slab construction



ROADWAY: type 613



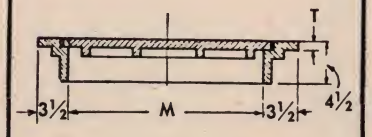
depth of casting and flange dimensions may be varied as desired; cover dimensions are 2 in. longer than dimensions M and O

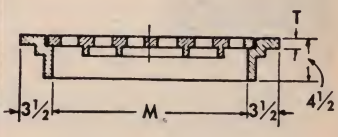
variations: 1, 3, 4, 5, 6, 15, 16, 18, 19 (page 3)

guarantee: ten years

ordering: specify both type number (613) and code number (from table)

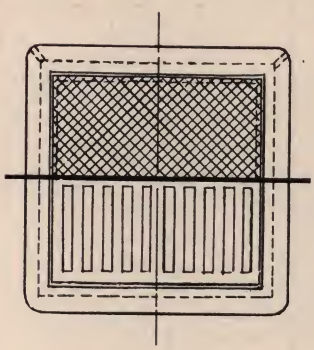
clear opening M	clear opening O	T	with cover	with plane grating
6	6	1	61894	61895
12	12	1	61880	61887
16	16	1	61881	61888
20	20	1	61882	61889
24	24	1¼	61883	61890
27	27	1¼	61896	61897
30	30	1¼	61884	61891
36	36	1½	61885	61892
42	42	2½	61886	61893
48	48	3	61898	61899







WALKWAY: type 622

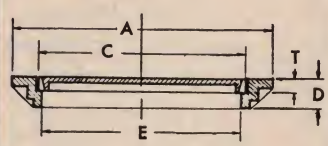


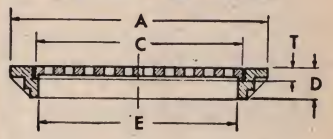
depth of casting may be varied as desired

variations: 1, 3, 4, 5, 6, 9, 10, 15, 16 (page 3)

ordering: specify both type number (622) and code number (from table)

E	A	D•	C	T	with cover	with plane grating
6	12	3	7¼	1¼	61351	61350
8	14	3	9¼	1¼	61353	61352
10	16	3	11¼	1½	61355	61354
12	18	3	13¼	1½	61357	61356
14	20	3	15¼	1½	61359	61358
16	22	3	17¼	1½	61361	61360
18	24	3	19¼	1½	61363	61362
20	26	3	21¼	1½	61365	61364
22	28	3	23¼	1½	61367	61366
24	30	3	25¼	1½	61369	61368
26	32	3	27¼	1½	61371	61370
28	34	3	29¼	1½	61373	61372
30	36	3	31¼	1½	61375	61374
32	38	3	33¼	1½	61377	61376
34	40	3	35¼	1½	61379	61378
36	42	3	37¼	1½	61381	61380
42	48	3	43¼	1½	61383	61382
48	54	3	49¼	1½	61385	61384
54	60	4	55¼	1½	61387	61386
60	66	4	61¼	1½	61389	61388
66	72	4	67¼	1½	61391	61390
72	78	4	73¼	1½	61393	61392



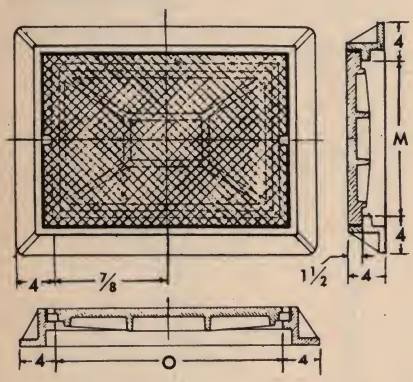


• May be varied as desired.

ld | **standard** | **rectangular**

for pit construction

ROADWAY:
with cover type 610



depth of casting and flange dimensions may be varied as desired; cover dimensions are 2 in. longer than dimensions M and O

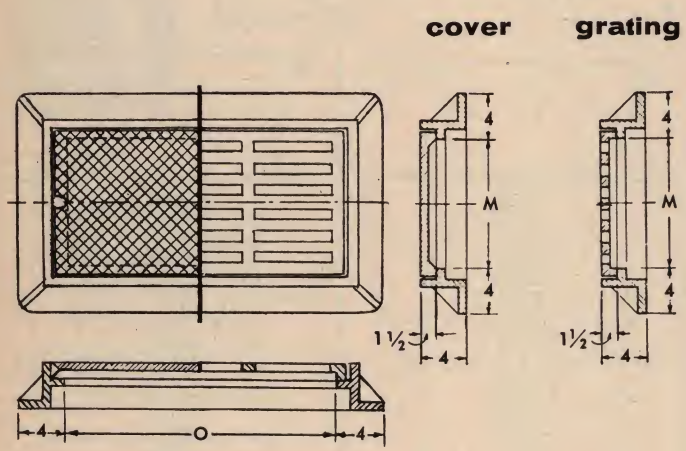
variations: 1, 3, 4, 5, 6, 7, 8, 15, 16, 18, 19 (page 3)

guarantee: ten years

ordering: specify both type number (610) and code number (from table)

clear opening			clear opening		
M	O		M	O	
10	15	60700	30	45	60720
	20	60701		60	60721
12	18	60702	32	48	60722
	24	60703		64	60723
14	21	60704	34	51	60724
	28	60705		68	60725
16	24	60706	36	54	60726
	32	60707		72	60727
18	27	60708	38	57	60728
	36	60709		76	60729
20	30	60710	40	60	60730
	40	60711		80	60731
22	33	60712	42	63	60732
	44	60713		80	60733
24	36	60714	44	66	60734
	48	60715		80	60735
26	39	60716	46	69	60736
	52	60717		80	60737
28	42	60718	48	72	60738
	56	60719		80	60739

WALKWAY:
with cover or grating type 620



depth of casting and flange dimensions may be varied as desired; lock operated when specified

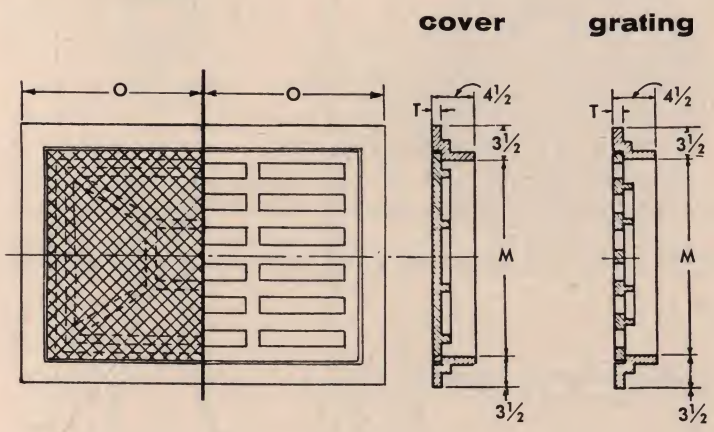
variations: 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 16 (page 3)

ordering: specify both type number (620) and code number (from table)

M	O	cover	grating	M	O	cover	grating
10	15	61250	62950	30	45	61260	62960
	20	61270	62970		60	61280	62980
	30	22900	...		90	22940	...
	40	22902	...		120	22942	...
12	18	61251	62951	32	48	61261	62961
	24	61271	62971		64	61281	62981
	36	22904	...		96	22944	...
	48	22906	...		128	22946	...
14	21	61252	62952	34	51	61262	62962
	28	61272	62972		68	61282	62982
	42	22908	...		102	22948	...
	56	22910	...		136	22950	...
16	24	61253	62953	36	54	61263	62963
	32	61273	62973		72	61283	62983
	48	22912	...		108	22952	...
	64	22914	...		144	22954	...
18	27	61254	62954	38	57	61264	62964
	36	61274	62974		76	61284	62984
	54	22916	...		114	22956	...
	72	22918	...		152	22958	...
20	30	61255	62955	40	60	61265	62965
	40	61275	62975		80	61285	62985
	60	22920	...		120	22960	...
	80	22922	...		160	22962	...
22	33	61256	62956	42	63	61266	62966
	44	61276	62976		80	61286	62986
	66	22924	...		126	22964	...
	88	22926	...		160	22966	...
24	36	61257	62957	44	66	61267	62967
	48	61277	62977		80	61287	62987
	72	22928	...		132	22968	...
	96	22930	...		160	22970	...
26	39	61258	62958	46	69	61268	62968
	52	61278	62978		80	61288	62988
	78	22932	...		138	22972	...
	104	22934	...		160	22974	...
28	42	61259	62959	48	72	61269	62969
	56	61279	62979		80	61289	62989
	84	22936	...		144	22976	...
	112	22938	...		160	22978	...

for slab construction

ROADWAY:
with cover or grating
type 613



depth of casting and flange dimensions may be varied as desired; cover dimensions are 2 in. longer than dimensions M and O

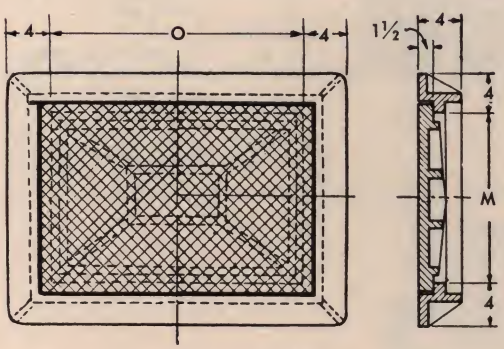
variations: 1, 3, 4, 5, 6, 15, 16, 18, 19 (page 3)

guarantee: ten years

ordering: specify both type number (613) and code number (from table)

clear opening				plane
M	O	T	cover	grating
12	18	1	60800	60812
	24	1	60801	60813
16	24	1	60802	60814
	32	1	60803	60815
20	30	1¼	60804	60816
	40	1¼	60805	60817
24	36	1¼	60806	60818
	48	1¼	60807	60819
30	45	1½	60808	60820
	60	1½	60809	60821
36	54	1½	60810	60822
	72	1½	60811	60823

ROADWAY:
with cover
type 614



depth of casting and flange dimensions may be varied as desired; cover dimensions are 2 in. longer than dimensions M and O

variations: 1, 3, 4, 5, 6, 7, 8, 15, 16, 18, 19 (page 3)

guarantee: ten years

ordering: specify both type number (614) and code number (from table)

clear opening			clear opening		
M	O		M	O	
10	15	60830	30	45	60850
	20	60831		60	60851
12	18	60832	32	48	60852
	24	60833		64	60853
14	21	60834	34	51	60854
	28	60835		68	60855
16	24	60836	36	54	60856
	32	60837		72	60857
18	27	60838	38	57	60858
	36	60839		76	60859
20	30	60840	40	60	60860
	40	60841		80	60861
22	33	60842	42	63	60862
	44	60843		80	60863
24	36	60844	44	66	60864
	48	60845		80	60865
26	39	60846	46	69	60866
	52	60847		80	60867
28	42	60848	48	72	60868
	56	60849		80	60869

1e valve box type

● circular • for pit construction • ROADWAY

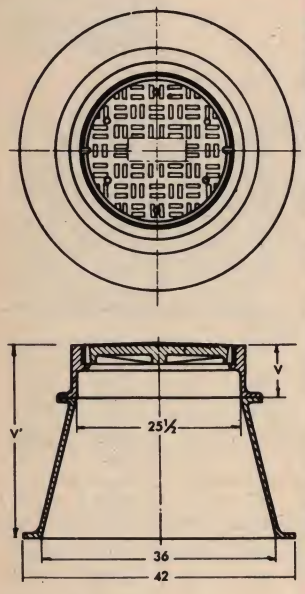
variations: 1, 2, 3, 4, 5, 6, 7, 8, 15, 18, 19 (page 3)

guarantee: 10 years

ordering: specify type number (660) and code number (from table)

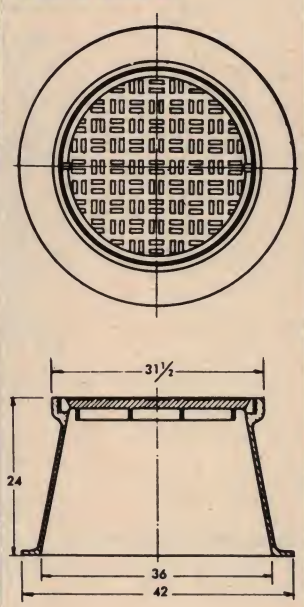
type 660

type 660-A skirt, frame, cover



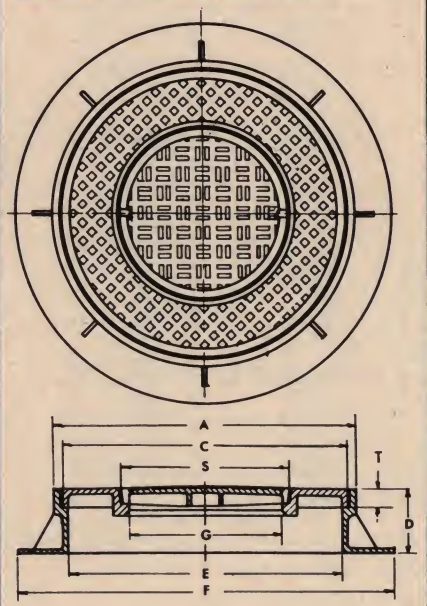
V	V'	code no.
6	30	61820
8	32	61821
9½	33½	61822
12	36	61823

type 660-B skirt, cover



code no. 28610

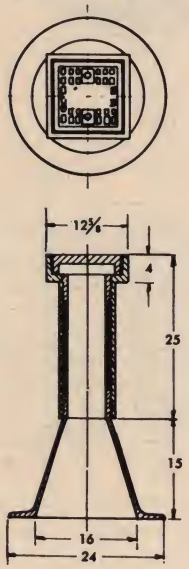
type 660-C frame, double cover



E	A	G	D	F	C	T	S	code no.
30	34½	22	8	42	32	1½	22	61828
36	41½	21⅜	8	48½	37¾	1⅜	23¾	61825
42	46¾	24	10	58	44½	3	26	61826
48	53	22	8	60	49⅝	1½	24	61829
54	60	22	8	64	57¾	1½	24	61830
60	66	22	8	70	66¾	1½	24	61831

type 660-D frame, sleeve, cover

depth: 40 to 60 in.



code no. 25284

1f non-rocking • tamper-proof

■ square • ROADWAY, WALKWAY

ELKINGTON-GATIC

manufactured under U.S. Pat. nos. 2109287, 2249603, 2545771

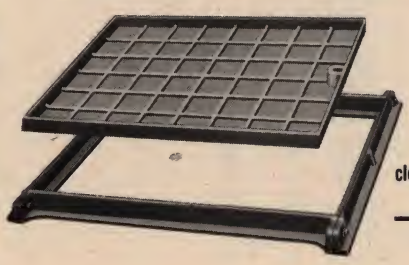
This ELKINGTON-GATIC manhole cover, with its tight-fitting frame, is based on a radically new principle of design and metallurgy. Its outstanding feature is that both castings are absolutely true to pattern and entirely free of distortion and internal strain. They fit so tight that a 1/100-inch feeler cannot be inserted between the cover and the vertical wall of the frame. Time does not develop distortion. The cover can be opened only by a special jack-key, furnished.

As a result, the ELKINGTON-GATIC is not only non-rocking but tamper-proof. With a grease film on the contacting surfaces, the unit is also air-tight, gas-tight and insect-proof. Under heavy, fast traffic, the cover cannot move, wear or rock.

The ELKINGTON-GATIC can be furnished with portable hinges, if required. Cover is hollowed for concrete filling.



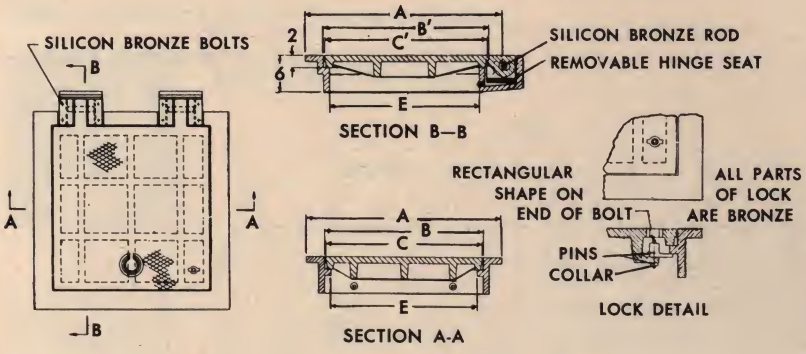
clear opening, in.	depth and width of frame	code no.
18 x 18	6 x 4⅞	92132
21 x 21	6 x 4⅞	92143
30 x 30	6 x 5¼	92156
36 x 36	6 x 5¼	92161



clear opening, in.	depth	width	code no.
18 x 18	1⅞	22 x 24	95532
21 x 21	1⅞	25 x 27	95540
24 x 24	1⅞	28 x 30	95547
30 x 30	1⅞	34 x 36	95556

g with hinged cover for slab construction

ROADWAY • square: type 644



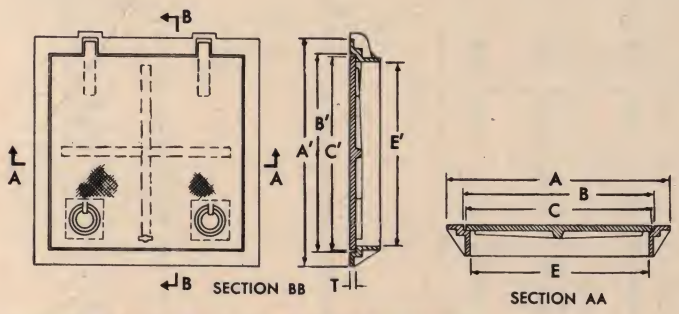
variations: 7, 8, 9, 11, 12, 15, 18, 19 (page 3)

guarantee: ROADWAY types for 10 years

ordering: specify both type number (644) and code number (from table)

E	A	B	B'	C	C'	without lock	with lock
8	16	10	10¾	9¾	10¼	19170	19171
12	20	14	14¾	13¾	14¼	19172	19173
18	26	20	20¾	19¾	20¼	19174	19175
20	28	22	22¾	21¾	22¼	19176	19177
24	32	26	26¾	25¾	26¼	19178	19179
27	35	29	29¾	28¾	29¼	19180	19181
30	38	32	32¾	31¾	32¼	19182	19183
33	41	35	35¾	34¾	35¼	19184	19185
36	44	38	38¾	37¾	38¼	19186	19187
39	47	41	41¾	40¾	41¼	19188	19189
42	50	44	44¾	43¾	44¼	19190	19191

WALKWAY • square, rectangular: type 678



- depth of frame 4 in. unless otherwise specified
- rectangular units larger than 24 in. x 36 in. with cover in two equal parts
- key cannot be removed unless cover is locked
- cast aluminum covers as specified
- ratchet only if specified

frame E	E'	A	A'	B	B'	cover C	C'	T	without lock	with lock
12	12	18	18	14	14	13½	13½	⅝	16200	16201
	18	18	24	14	20	13½	19½	⅝	16202	16203
	24	18	30	14	26	13½	25½	⅝	16204	16205
18	18	24	24	20	20	19½	19½	¾	16206	16207
	27	24	33	20	29	19½	28½	¾	16208	16209
	36	24	42	20	38	19½	37½	¾	16210	16211
24	24	30	30	26	26	25½	25½	¾	16212	16213
	36	30	42	26	38	25½	37½	¾	16214	16215
	48	30	54	26	50	25½	49½	¾	16216	16217
30	30	36	36	32	32	31½	31½	¾	16218	16219
	45	36	51	32	47	31½	46½	¾	16220	16221
	60	36	66	32	62	31½	61½	¾	16222	16223
36	36	42	42	38	38	37½	37½	¾	16224	16225
	54	42	60	38	56	37½	55½	¾	16226	16227
	72	42	78	38	74	37½	73½	¾	16228	16229

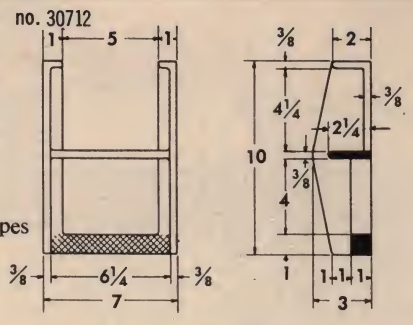
h manhole steps

type 663

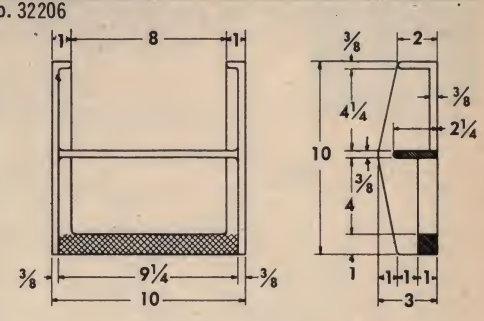
cast aluminum, steel and wrought iron types available on request

ordering: by code number

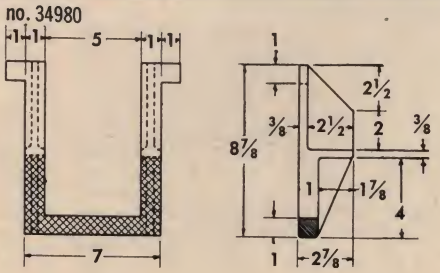
no. 30712



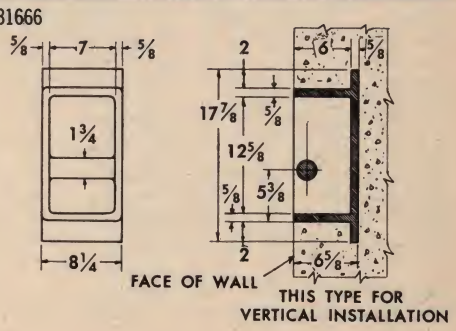
no. 32206



no. 34980



no. 31666

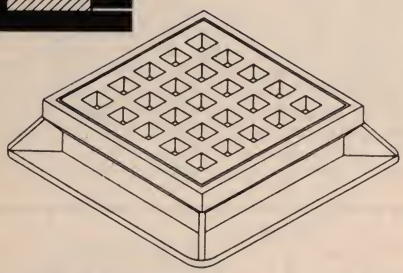


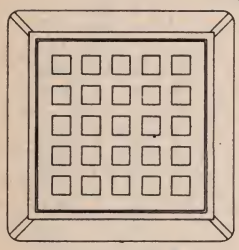
2a standard • *plane grating* ROADWAY

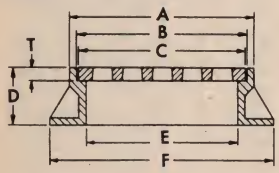
■ square

type 309









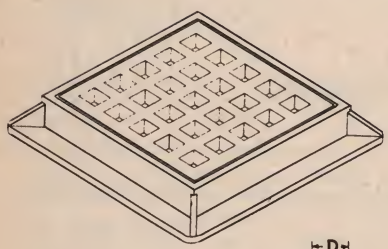
guarantee: ten years

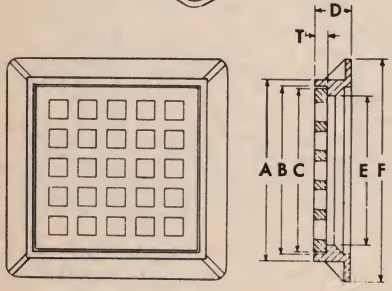
ordering: specify both type number (309) and code number (from table)

frame E	D	F	grating A	B	C	T	openings no.	openings size	code no.
16	10	26	20	18	17¾	1½	12	1½ x 6¾	20200
18	6	26	20½	19½	19¼	1⅝	20	1 x 7½	19084
20	8	30	25	22	21¾	1½	..	...	19923
24	6	34	29¼	26¼	26	1½	36	2⅛ x 2⅛	19906
	8	34	29¼	26¼	26	1½	36	2⅛ x 2⅛	19907
	10	40¼	29¼	26¼	26	1½	36	2⅛ x 2⅛	28200
26	10	36½	31	28	27¾	1½	27	1⅝ x 6⅞	20202
30	6	40½	35	32	31¾	1½	..	...	19924
	8	40½	35	32	31¾	1½	..	...	19925
	10	40½	35	32	31¾	1½	..	...	28202
36	6	46½	41	38	37¾	1½	49	3¼ x 3¼	19910
	8	46½	41	38	37¾	1½	49	3¼ x 3¼	19911
	10	46½	41	38	37¾	1½	49	3¼ x 3¼	28204
42	6	52½	47	44	43¾	1½	..	...	19914
	8	52½	47	44	43¾	1½	..	...	19915
	10	52½	47	44	43¾	1½	..	...	28206
48	6	58½	53	50	49¾	1½	..	...	19918
	8	58½	53	50	49¾	1½	..	...	19919
	10	58½	53	50	49¾	1½	..	...	28208
54	6	64½	59	56	55¾	1½	..	...	19920
	8	64½	59	56	55¾	1½	..	...	19921
	10	64½	59	56	55¾	1½	..	...	28209

type 310







guarantee: ten years

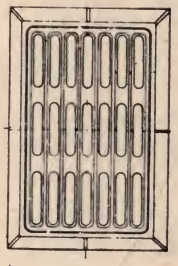
ordering: specify both type number (310) and code number (from table)

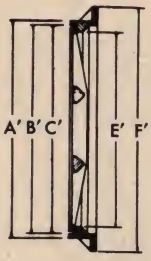
frame E	D	F	grating A	B	C	T	openings no.	openings size	openings area	code no.
9½	5	21½	12¼	11½	11¼	3	9	2 x 2	36	19430
10	4	20	13½	12¼	12	1	36	1 x 1	36	25986
11½	4	20	15	13¾	13½	1	12	1 3/16 x 5 5/16	77	25975
16	6¾	26	19½	18	17¾	1½	25	2 x 2	100	22580
	4	27	19¾	18¼	18	1¼	64	1 x 1	64	29180
18	8	32	21¾	20	19¾	2	64	1⅜ x 1⅜	121	21593
22	4	32¼	26¾	24¼	24	1¾	36	2⅜ x 2⅜	203	19334
	5	32¼	26¾	24¼	24	1¾	36	2⅜ x 2⅜	203	31392
	8	32¼	26¾	24¼	24	1¾	36	2⅜ x 2⅜	203	19333
	8¾	36	25¾	24¼	24	1¼	21	1¾ x 5⅞	216	27527
	8	40¼	26⅞	24¼	24	1¾	25	2⅞ x 2⅛	207	25414
24	6	33	27¾	26¼	26	1¼	36	2⅛ x 2⅛	163	33952
	8	35	27½	26	25¾	1½	36	2⅛ x 2⅛	163	30889
26½	7	37	30	29	28½	2	64	2 x 2	256	22585
30	6¼	41	33¾	32¼	32	2	27	2 x 8	432	39626
32	4	44	36	34¼	34	2½	49	3¼ x 3¼	518	25471
34	6	44	38	36	35¾	3	49	3¼ x 3¼	518	39629
36	8	48	40	38	37¾	1½	49	3¼ x 3¼	518	39634

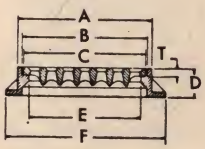
rectangular



type 325







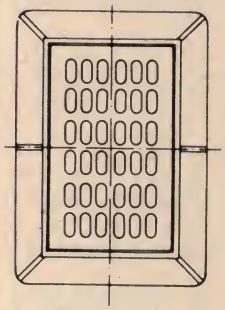
guarantee: ten years

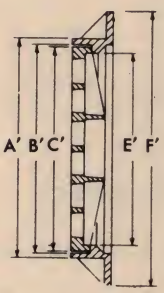
ordering: specify both type number (325) and code number (from table)

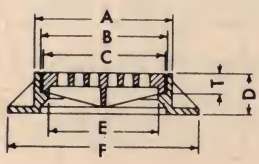
frame		grating													code no.
E	E'	D	F	F'	A	A'	B	B'	C	C'	T	openings			
												no.	size	area	
10	21	5	20	31	14	25	12	23	11¾	22¾	1½	8	1⅜ x 9⅜	100	39659
	43¾	5	20	53¾	14	47¾	12	45¾	11¾	45½	1½	16	1⅜ x 9⅜	200	22547
15¼	45¼	3½	22¾	52¾	20¼	50¼	18¼	48¼	18	48	2¼	24	1½ x 10⅝	370	22548
15¾	21¾	3¼	22¾	28¾	20¼	26¼	18¼	24¼	18	24	2¼	12	1½ x 10⅝	185	32392
17¼	21	4	23¾	30½	20¾	24½	19¼	23	19	22¾	1⅞	14	1½ x 9⅜	190	34965
18½	32⅛	4	28	41½	22¾	36⅜	20¾	34⅜	20½	34⅛	1¼	24	1⅛ x 9	236	21362
19½	33½	5	28	42	23½	37½	22	36	21¾	35¾	1¼	21	1½ x 9	273	32316
	36	5	30½	46¾	23⅜	39⅝	21⅞	38¼	21⅝	38	2	21	1½ x 11¼	344	30205
	45	5	28	54	23½	49½	22	48	21¾	47½	1¼	28	1½ x 10	406	32315
	73	5	28	78	23½	73½	22	72	21¾	71½	1¼	42	1½ x 9	546	22549
	93	5	28	102	23½	97½	22	96	21¾	95½	1¼	56	1½ x 10	812	22550
22	26	5	32	36	26	30	24	28	23¾	27¾	1⅝	16	1½ x 11⅝	271	22546
	33	4	30	41	25½	36½	24	35	23¾	34¾	1½	21	1½ x 10	305	39421
24	30	5	34	40	28	34	26¼	32¼	26	32	3	24	1½ x 8½	294	33121
	36	5	34	46	28	40	26¼	38¼	26	38	3	24	1½ x 10½	366	33120
	36	3½	32	44	28	40	26	38	25¾	37¾	2½	27	1½ x 10½	412	36096
	62	5	34	72¼	28	66¼	26¼	64½	26	64	3	48	1½ x 8½	588	22551
	76	5	34	84¼	28	78¼	26¼	76½	26	76	3	48	1½ x 10½	732	22552
27½	47	5	36	55½	32	51½	30	40½	29¾	49¼	1	40	1½ x 10½	610	18743
41½	45	5	50	54	45½	49½	44	48	43½	47½	1¼	56	1½ x 10	812	22553
50	30	5	60	40	54	34	52¼	32¼	52	32	3	48	1½ x 8½	588	22554
	36	5	60	46	54	40	52¼	38¼	52	38	3	48	1½ x 10	696	22555



type 326







guarantee: ten years

ordering: specify both type number (326) and code number (from table)

frame		grating													code no.
E	E'	D	F	F'	A	A'	B	B'	C	C'	T	openings			
												no.	size	area	
12	36	6	20	44	15½	39½	14	38	13¾	37¾	2	28	. . .	. . .	38459
	74	6	20	82	15½	77¼	14	76	13¾	75¾	2	56	. . .	. . .	22533
16	28	6	28	40	19⅞	31⅞	18⅜	30⅜	18⅛	30⅛	3	36	1½ x 3⅝	185	32381
	58	6	28	71	19⅞	62	18⅜	60½	18⅛	60¼	3	72	1½ x 3⅝	370	22534
19	22¾	8	26½	31	21¾	25¾	20¼	24¼	20	24	1¼	30	1⅝ x 3	129	29404
	32	4	28	41⅜	22½	35⅝	21	34⅛	20¾	33⅞	1	35	2 x 3¼	197	32308
	45	5	28	54	23½	49½	22	48	21¾	47¾	1¼	60	. . .	. . .	22542
	66	4	28	75	22½	69½	21	68	20¾	67¾	1	70	2 x 3¼	394	22536
	93	5	28	102	23½	97½	22	96	21¾	95½	3	120	. . .	. . .	22535
24	36	3½	32	44	28	40	26	38	25¾	37¾	2½	72	1⅝ x 3½	366	31680
	74	3½	32	82	28	78	26	76	25¾	75½	2½	144	1⅝ x 3½	732	22537
26	46	6	34	54	29½	49½	28	48	27¾	47¾	1½	80	2 x 3⅜	471	22543
	94	6	34	102	29½	97½	28	96	27¾	95½	1½	160	2 x 3⅜	942	22538
27	46	6	36	55	30½	49½	29	48	28¾	47¾	1¼	90	1⅞ x 3½	520	29400
	94	6	36	103	29½	97½	29	96	28¾	95½	1¼	180	1⅞ x 3½	1040	22539
44	45	5	53	54	48½	49½	47	48	43½	47¾	1¼	120	. . .	. . .	22540
36	56	3½	44	58	40	54	38	52	37¾	51½	2½	144	1⅝ x 3½	732	22544
46	56	6	56½	66½	49½	59½	48	58	47¾	57½	1¼	180	1⅞ x 3½	1040	22545

2b standard • *concave grating* ROADWAY

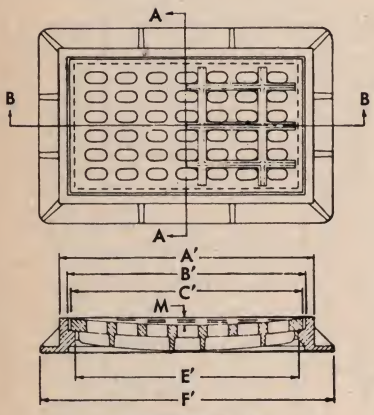


rectangular

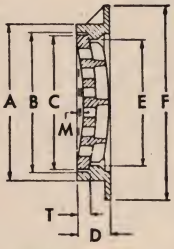
type 339

guarantee: ten years

ordering: specify both type number (339) and code number (from table)



SECTION B—B



SECTION A-A

frame							grating							
E	E'	D	F F'	A A'	B B'	C	C'	T	M	no. opngs	size openings	total open area	code no.
12½	17½	4	20 x25	15¾ x20¾	14¼ x19	14	18¾	1½	⅝	18	1½ x1¾	31	38458
14	26	6½	23¾ x35¾	17½ x29½	16 x28	15¾	27¾	2	¾	24	1⅞ x3½	139	29483
17	22½	4½	27 x32½	20¾ x26	19¼ x24½	18¾	24	2	½	30	1¾ x3⅜	249	29417
19	32	4	28 x41⅜	22¼ x35⅞	20¾ x34⅜	20½	34⅛	2¾	¾	42	2 x3½	258	35194
	35	5⅛	30¼ x46½	24¼ x40½	21¼ x37½	21	37¼	2	1	42	1¾ x3½	233	29480
	45	5	28 x54	23½ x49½	22 x48	21½	47½	1¼	1¼	60	2 x3	308	25101
19½	36	5	30½ x46¾	24½ x40⅞	21⅞ x38¼	21⅜	38	2	⅝	49	1⅝ x3⅞	280	26118
20	34	5½	28 x42	23½ x37½	22 x36	21½	35½	1¼	¾	36	2 x4¼	274	20246
21	27	3	21 x27½	25¼ x31¾	23 x29½	22¾	29¼	2					26447
24	34	4¼	32 x42¼	28¾ x38¼	26½ x36¼	26¼	36	3					26219
27	47	5	36 x55½	32 x51½	30 x49½	29½	49	1	1½	80	1¾ x3¼	370	25115
33	39	5	43 x49	36¾ x43¾	35¼ x42¼	35	42	1¼		42	1⅞ x3¼	222	26117
42½	45	5	49¾ x54	45½ x49½	44 x48	43½	47¾	1¼		120	2 x3½	736	26119

2c curb ROADWAY • with or without back plate

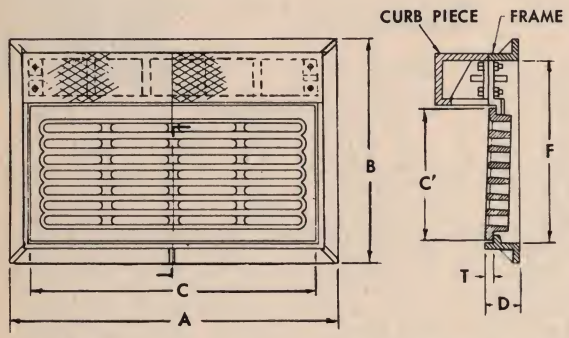
type 683

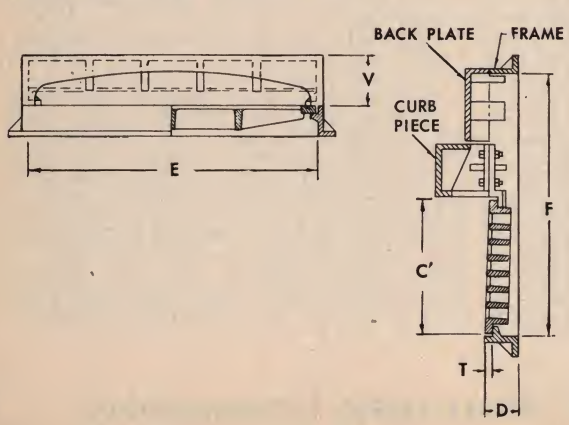
dimension V generally 2 in. greater than adjacent curb depth—but may be varied as required

curb inlet with circular base also available

guarantee: ten years

ordering: specify both type number (683), curb height, V, and code number (from table)





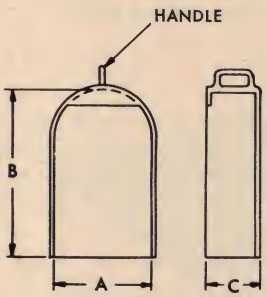
frame					grating			area grate opening sq. in.	code no.
E	F	A	B	D	C	C'	T		
without back plate									
30	30	36	36	5½	29¾	21¾	1¼	210	60280
36	27½	43½	35¼	6½	35	21¾	1¼	240	60281
48	29	54	37	6½	47¾	21¾	1¼	400	60282
49	36	55½	42¾	5	49½	29¾	1	630	60283
48	50	54	56	5	47¾	43½	1¼	800▲	60284
with back plate									
25½	27½	37	39½	6½	24	18¾	2½	145	60285
36	34¾	43	43	6½	35	21¾	1¼	240	60286
48	42	54	48	6½	47¾	21¾	1¼	400	60287

▲ grating in two parts

a standard type 1168

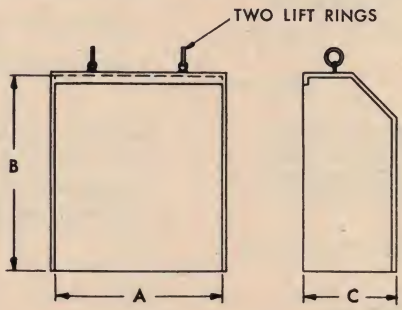
hood detail

for pipe sizes to 20 in.

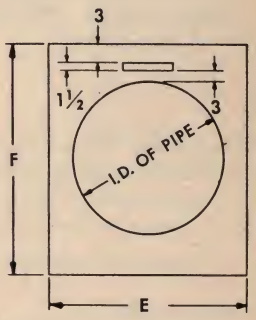


hood detail

for pipe sizes 22 in. and over



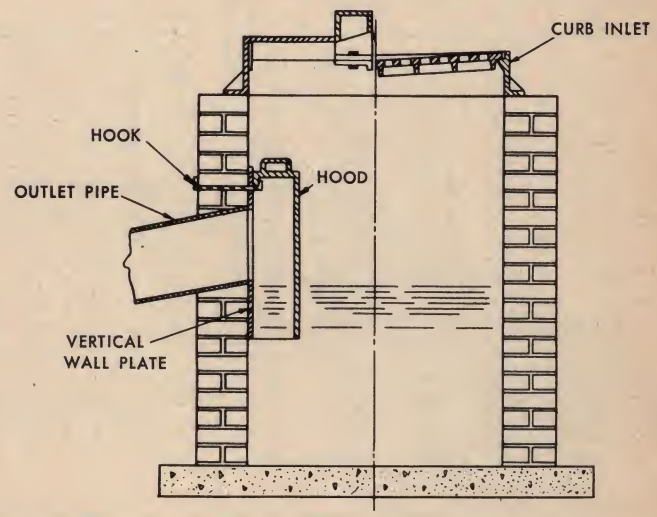
detail vertical wall plate



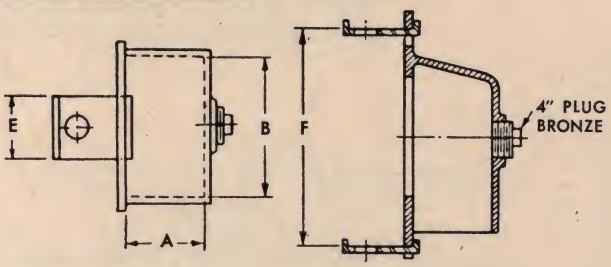
ordering: specify both type number (1168) and code number (from table)

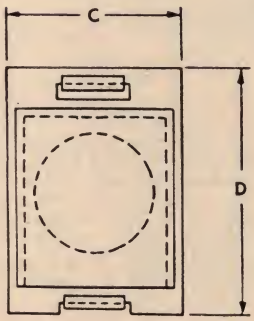
pipe size	hood A	hood B	hood C	vertical wall plate E	vertical wall plate F	vertical wall plate T	with vertical plate	without vertical plate
4	6	12	3	8	15	⅝	30133	30134
6	8½	15	4	10½	20	⅝	19706	19707
8	11½	20½	5½	13½	23½	⅝	26714	26721
10	13¼	23½	6½	15¼	26½	⅝	26715	26722
12	15¾	26	7½	17¾	29	⅝	26716	26723
15	18	27	9	20	30	¾	26717	26724
18	21¼	27¼	12¾	23½	32¼	⅞	19708	19709
20	25¼	29¼	14¾	27¼	32¼	⅞	26719	26726
22	26¾	31¼	15	29	36¾	⅞	19710	19711
24	30½	33¾	15	32¼	36¾	⅞	19697	21628
27	30½	36¼	19¾	33	42¼	1	19712	19713
30	35	39¼	21	37	42¼	1	19701	22998
33	40½	42¼	22	43	47¼	1	19714	19715
36	50	44¼	21⅛	52	47¼	1	19702	22999

installation of trap with curb inlet



b gas tight type 520





ordering: specify both type number (520) and code number (from table)

pipe size	A	B	C	D	E	F	code no.
4	3	6	10	20	6	16½	38100
6	4	9	13	22	6	18½	38101
8	5	12	16	24	8	20½	38102
10	6	14	18	26	8	22½	38103
12	8	16	20	28	8	24½	38104
15	10	18	22	31	8	27½	38105
18	12	24	29	34	10	30½	38106
21	12	30	35	37	10	33½	38107
24	15	32	37	40	12	36½	38108
27	15	40	45	43	12	39½	38109
30	15	48	54	46	12	42½	38110

FLOCKHART troughs, with grating (or cover), are particularly suited to public buildings, garages, laundries, manufacturing plants, parking areas—also to shower rooms in schools, dormitories, stadia and factories. They eliminate the necessity and expense of forms for building trenches. They assure uniform bearing of the grating (or cover) on the trough.

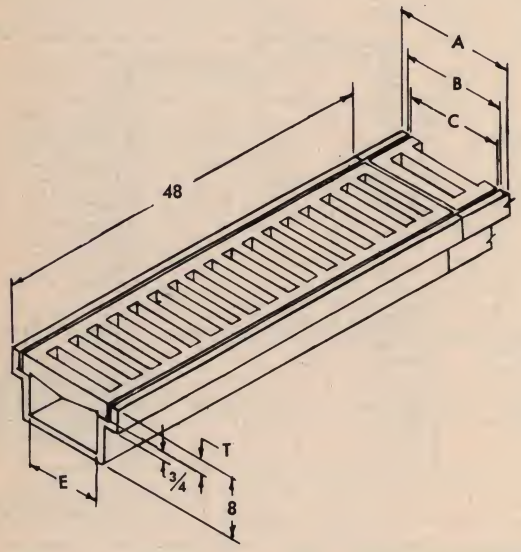
The sections, 48 in. long, are regularly furnished with open ends, butt joints and without pipe connections. However, these troughs can be furnished, when specified, with outlet pipe connections for extra heavy cast iron soil pipe.

For unusual requirements, these FLOCKHART troughs can be furnished with special features:

- special caulked joints between adjoining sections—for installations that must be watertight
- grating (or cover) secured to frame by silicon bronze bolts
- grating (or cover) of aluminum or bronze

ordering: give type number and code number (from table); also state over-all length of assembly and any special requirements; sections with closed ends; outlet connections by size, type (spigot, bell, inside caulk)

ROADWAY • with grating: type 646

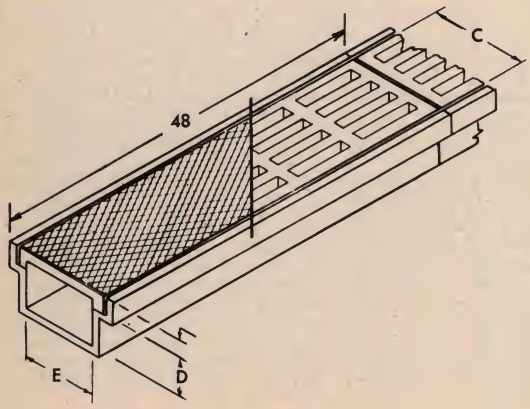


also available with cover and made watertight either by lead caulking or by bolting and gasketing

ordering: give type number (646) and code number (from table)

E	A	B	C	T	cast fitting surfaces type A	milled horizontal fitting surfaces type B	milled horizontal & vertical fitting surfaces type C
6	10½	8½	8¼	2	17300	17301	17302
8	12½	10½	10¼	2	17303	17304	17305
10	14½	12½	12¼	2	17306	17307	17308
12	16½	14½	14¼	2	17309	17310	17311
14	18½	16½	16¼	2½	17312	17313	17314
16	20½	18½	18¼	2½	17315	17316	17317
18	22½	20½	20¼	2½	17318	17319	17320
20	24½	22½	22¼	2½	16153	16154	16155
24	28½	26½	26¼	3	16159	16160	16161

WALKWAY • with cover or grating: type 689



can be made watertight either by lead caulking or by bolting and gasketing

ordering: give type number (689) and code number (from table)

E	C	D = 4″ cover	D = 4″ grating	D = 6″ cover	D = 6″ grating
4	5¼	17900	17901	17902	17903
6	7¼	17904	17905	17906	17907
8	9¼	17908	17909	17910	17911
10	11¼	17912	17913	17914	17915
12	13¼	17916	17917	17918	17919

ROADWAY

with cover: type 672
with grating: type 679

covers and gratings for trench openings, W, wider than 12 in. made 24 in. long

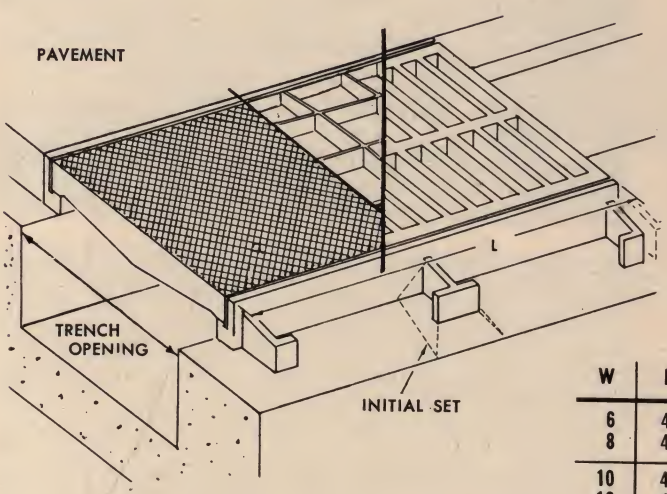
variations: made of cast aluminum or bronze on order; frames bolted together with steel bolts when specified

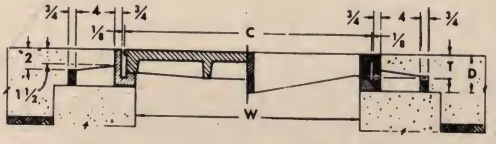
guarantee: ROADWAY types for ten years

installation:

- set each frame and grating as a unit
- adjust unit to proper plane and cement anchors to base for initial set
- after cement hardens, test unit for plane
- pour concrete

ordering: specify both type number and code number (from table)

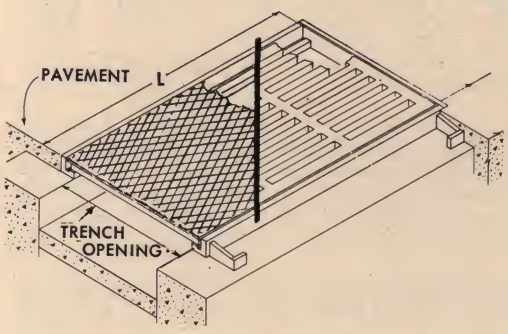


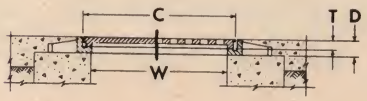


W	L	C	T	D	cast fitting surfaces type A 672	cast fitting surfaces type A 679	milled horizontal fitting surfaces type B 672	milled horizontal fitting surfaces type B 679	milled horizontal & vertical fitting surfaces type C 672	milled horizontal & vertical fitting surfaces type C 679
6	48	8¼	2	3	45400	41100	45401	41101	45402	41102
8	48	10¼	2	3	45403	41103	45404	41104	45405	41105
10	48	12¼	2	3	45406	41106	45407	41107	45408	41108
12	48	14¼	2	3	45409	41109	45410	41110	45411	41111
14	48	16¼	2½	3½	45412	41112	45413	41113	45414	41114
16	48	18¼	2½	3½	45415	41115	45416	41116	45417	41117
18	48	20¼	2½	3½	45418	41118	45419	41119	45420	41120
20	48	22¼	2½	3½	45421	41121	45422	41122	45423	41123
22	48	24¼	2½	3½	45424	41124	45425	41125	45426	41126
24	48	26¼	3	4	45427	41127	45428	41128	45429	41129
30	48	32¼	3	4	45430	41130	45431	41131	45432	41132
36	48	38¼	3	4	45433	41133	45434	41134	45435	41135
42	48	44¼	3	4	45436	41136	45437	41137	45438	41138
48	48	50¼	3	4	45439	41139	45440	41140	45441	41141
54	48	56¼	4	5	45442	41142	45443	41143	45444	41144
60	48	62¼	4	5	45445	41145	45446	41146	45447	41147

WALKWAY

with cover: type 636
with grating: type 637





W	L	C	T	D	cast fitting surfaces type A 636	cast fitting surfaces type A 637	milled horizontal fitting surfaces type B 636	milled horizontal fitting surfaces type B 637	milled horizontal & vertical fitting surfaces type C 636	milled horizontal & vertical fitting surfaces type C 637
6	36	8¼	1¼	2	45200	45300	45201	45301	45202	45302
8	36	10¼	1¼	2	45203	45303	45204	45304	45205	45305
10	36	12¼	1¼	2	45206	45306	45207	45307	45208	45308
12	36	14¼	1¼	2	45209	45309	45210	45310	45211	45311
14	36	16¼	1¼	2	45212	45312	45213	45313	45214	45314
16	36	18¼	1¼	2	45215	45315	45216	45316	45217	45317
18	36	20¼	1¼	2	45218	45318	45219	45319	45220	45320
20	36	22¼	1½	2¼	45221	45321	45222	45322	45223	45323
22	36	24¼	1½	2¼	45224	45324	45225	45325	45226	45326
24	24	26¼	1½	2¼	45227	45327	45228	45328	45229	45329
27	24	29¼	1½	2¼	45230	45330	45231	45331	45232	45332
30	24	32¼	1¾	2½	45233	45333	45234	45334	45235	45335
33	24	35¼	1¾	2½	45236	45336	45237	45337	45238	45338
36	24	38¼	1¾	2½	45239	45339	45240	45340	45241	45341
39	24	41¼	1¾	2½	45242	45342	45243	45343	45244	45344
42	24	44¼	2	2¾	45245	45345	45246	45346	45247	45347
45	24	47¼	2	2¾	45248	45348	45249	45349	45250	45350
48	24	50¼	2	2¾	45251	45351	45252	45352	45253	45353
54	24	56¼	2	2¾	45254	45354	45255	45355	45256	45356
60	24	62¼	2	2¾	45257	45357	45258	45358	45259	45359

6 airport castings

These Flockhart castings are specially designed and formulated to handle the heavy wheel loads of military, continental and intercontinental aircraft. They are used alongside runways, on aprons and in hangars.



Their design loading conforms with the most recent CAA recommendations, used extensively by municipal and state agencies for their airports.

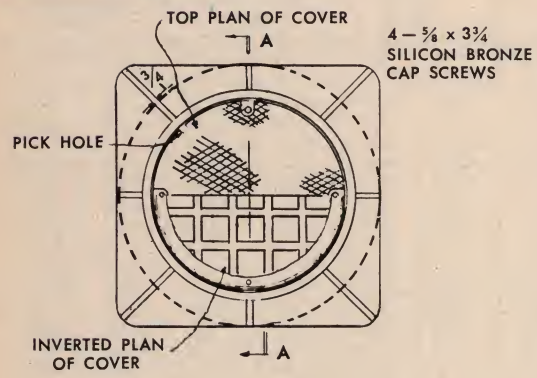


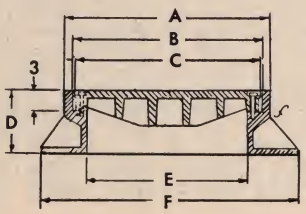
6a manhole frame with cover

● circular • for pit construction

type 686







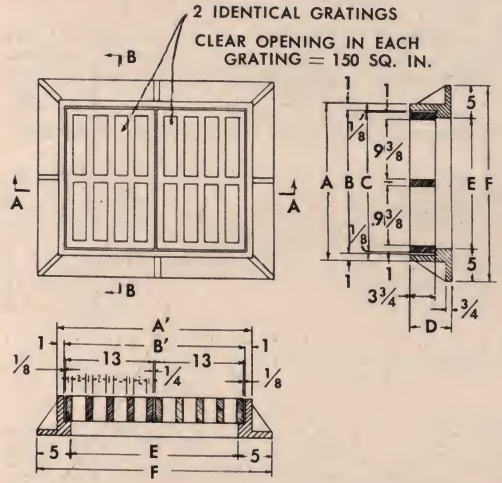
E	D	F	A	B	C	flange	code number
24	8	38	30	28	27¾	circular	18750
24	8	38	30	28	27¾	square	18751
30	8	44	36	34	33¾	circular	18740
30	8	44	36	34	33¾	square	18741

Made of cast iron ASTM A-48, class 30—for 150 psi uniformly distributed load. Seats of frame and cover machined for perfect bearing. Cover held down by four silicon bronze cap screws—to avoid displacement under wheel impact.

For special requirements, variations in cover are possible: other loadings; ductile iron ASTM A-339, for high loadings or reduced weight; inscription as required.

6b inlet frame with grating ■ rectangular • for pit construction

type 687



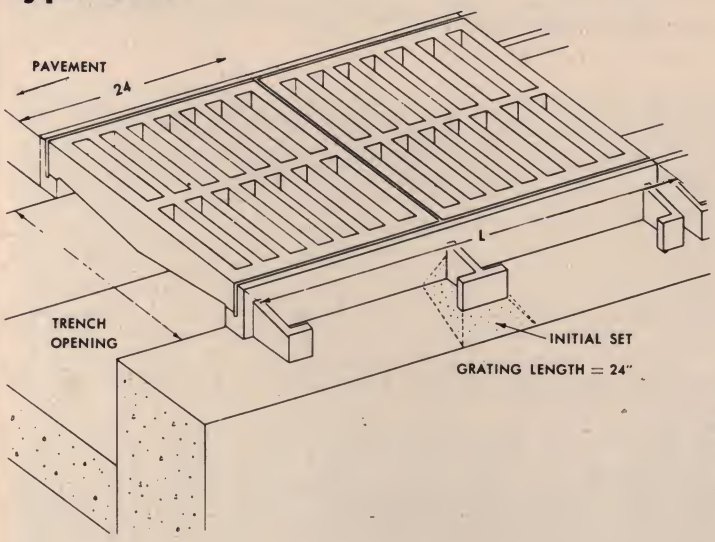
E x E'	D	F x F'	A x A'	B x B'	no. of gratings	free area	code no.
20 x 24½	6	30 x 34½	24 x 28½	22 x 26½	2	60%	34343
20 x 37½	6	30 x 47½	24 x 41½	22 x 39½	3	60%	34344
20 x 50¾	6	30 x 60¾	24 x 54¾	22 x 53¾	4	60%	34345

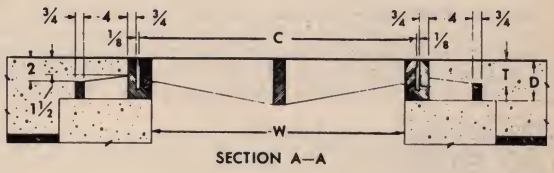
Frame made of cast iron ASTM A-48, class 30; grating made of ductile iron ASTM A-339—for 65,000 lb wheel load or 230 psi uniformly distributed load.

Frame designed with substantial flange for proper distribution of pressure to supporting structure. Grating designed with deep seating to prevent movement under wheel load; made in multiple sections to facilitate cleaning of catch basin.

6c trench frame with grating • for pit construction

type 688





Frame made of cast iron; grating made of either cast iron or ductile iron depending on load and span. Load ratings shown in table are for uniformly distributed loads and cover the majority of existing wheel loads. However, when trench width is 36 inches or more, it is necessary, in specifying or ordering, to specify actual wheel load, also the contact area or type of plane. Seats of frame and grating milled for perfect bearing.

Variations, when specified, are available: frame sections bolted together with steel bolts; grating bolted to frame (stainless steel or bronze, as specified).

installation:

- set each frame and grating as a unit
- adjust unit to proper plane and cement anchors to base for initial set
- after cement hardens, test unit for plane
- pour concrete

					loading in lb per sq in.			
W	L	C	T	D	110	143	200	243
6	48	8¼	2	3	47100	47101	47102	47103
8	48	10¼	2	3	47104	47105	47106	47107
10	48	12¼	2	3	47108	47109	47110	47111
12	48	14¼	2	3	47112	47113	47114	47115
14	48	16¼	2½	3½	47116	47117	47118	47119
16	48	18¼	2½	3½	47120	47121	47122	47123
18	48	20¼	2½	3½	47124	47125	47126	47127
20	48	22¼	2½	3½	47128	47129	47130	47131
22	48	24¼	2½	3½	47132	47133	47134	47135
24	48	26¼	3	4	47136	47137	47138	47139
30	48	32¼	3	4	47140	47141	47142	47143
36	48	38¼	3	4	47144	47145	47146	47147
42	48	44¼	3	4	47148	47149	47150	47151
48	48	50¼	3	4	47152	47153	47154	47155
54	48	56¼	4	5	47156	47157	47158	47159
60	48	60¼	4	5	47160	47161	47162	47163

7 armored concrete

ARMORED CONCRETE is concrete with the exposed vertical surfaces armored with grey cast iron. This armor is bonded to the concrete in such a manner that no part of it can vibrate in the slightest degree. Consequently there can be no fracture of the iron. Since cast iron is substantially incompressible, the force of an impact is so widely distributed that the concrete is undamaged. The resistance of the cast iron element to abrasion and corrosion is evident. The coefficients of expansion of cast iron and concrete are for all practical purposes identical: thus ARMORED CONCRETE is unaffected by variations of temperature.

advantages

- impact resistance: the only commercially known building material that resists impact perfectly
- abrasion resistance: all surfaces subject to abrasion are protected by the cast iron component
- corrosion resistance: the corrosion of cast iron is negligible
- temperature variation: no effect

testing

In 1924, initial installations of ARMORED CONCRETE were made at selected points in metropolitan New York. Locations were purposely selected which would subject the construction to the most severe impact and abrasion conditions. Not one failure has occurred. Since 1924, hundreds of ARMORED CONCRETE installations have been made in all parts of the country—many where other types of construction had failed. *In all instances,* ARMORED CONCRETE *has withstood the double test of time and performance.*

representative installations

United States Government
U. S. Military Academy, West Point

Port of New York Authority
Idlewild International Airport
Tri-Borough Bridge safety islands
Island Terminal No. 1
Holland Tunnel approaches
Lincoln Tunnel approaches

New York City Tunnel Authority
Queens Midtown Tunnel approaches

New York Central System
Grand Central Terminal

United Nations
Headquarters, New York City

New York City
Henry Hudson Parkway toll booth islands

Pennsylvania Railroad
Newark station

guarantee

Providing the method of installation is directed by us, any cast iron component which may crack within ten years from invoice date will be replaced gratis, fob nearest railroad station. In addition, a cash refund equal to the purchase price of the cast iron component will be made.



Two full miles of protection with ARMORED CONCRETE: *the helix approach to the Lincoln Tunnel.*

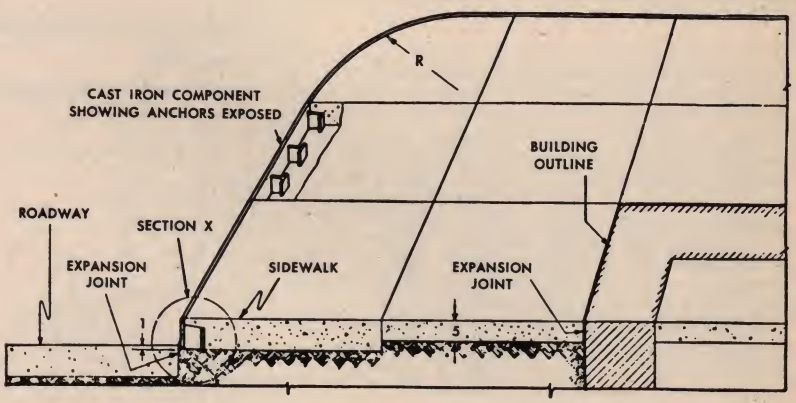
7a for sidewalk curb

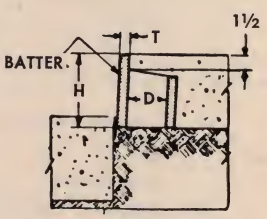
type 700

Batter, unless otherwise specified, 2°. Except for radial sections, any batter can be obtained by proper setting of casting. For radial sections, specify batter required.

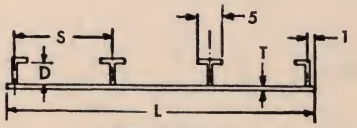
dimensions

H	as required
L	6½ ft max
T	¾ to ⅞ in.
D	4 in.
S	18 in. max
R	as required





ENLARGED SECTION X



DETAIL OF
CAST IRON COMPONENT

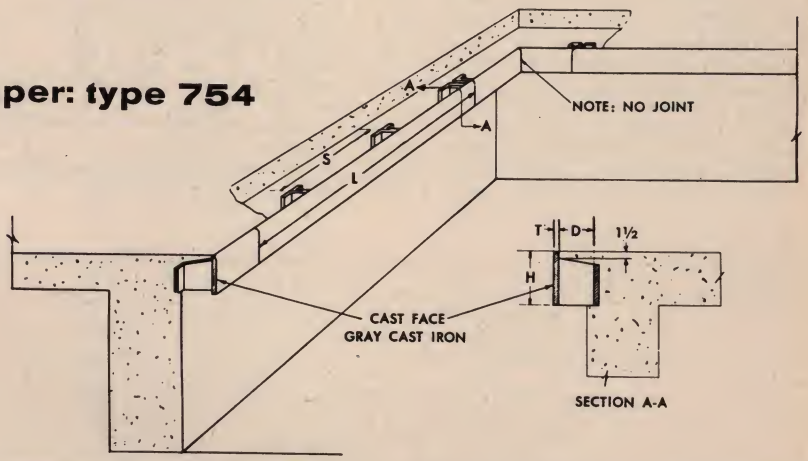
7b for loading platforms

without provision for wood bumper: type 754

guarantee: for 20 years, when installation is directed by Flockhart Foundry

dimensions

H	6, 8, 10, 12 in. or as specified
T	⅛ to 1 in.
S	20 in.
D	6 in. min
L	48 in. or as required



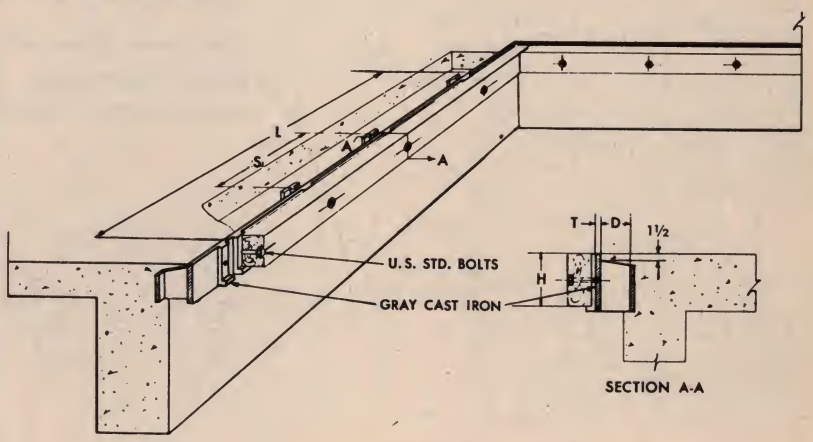
with provision for wood bumper: type 755

This type has the necessary fittings for attaching a renewable wooden bumper to prevent damage to vehicles. (Wood bumper not furnished).

guarantee: 20 years, when installation is directed by Flockhart Foundry

dimensions

H	6, 8, 10, 12 in. or as specified
T	⅛ to 1 in.
S	20 in. max
D	6 in. min
L	48 in. or as required



8a armored concrete type

FLOCKHART wheel guards of the armored concrete type are concrete with the exposed vertical surfaces armored with grey cast iron. This armor is bonded to the concrete in such a manner that no part of it can vibrate in the slightest degree. Consequently there can be no fracture of the iron. Since cast iron is substantially incompressible, the force of an impact is so widely distributed that the concrete is undamaged. The resistance of the cast iron element to abrasion and corrosion is evident. The coefficients of expansion of cast iron and concrete are for all practical purposes identical: thus, wheel guards of the armored concrete type are unaffected by variations of temperature.

guarantee: for 20 years, when installation is by Flockhart Foundry

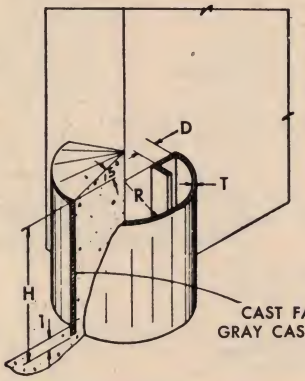
dimensions

H, R, L, X, Y, Z: as specified

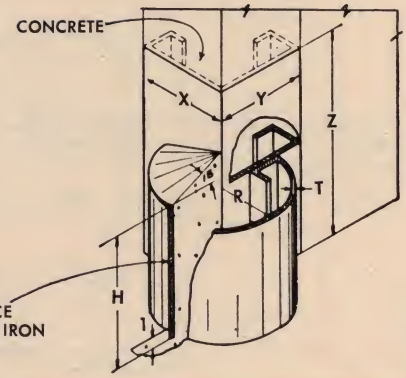
D	4 in.
T	⅞ to 1 in.
C	7 in. min
V	variable

for doorways

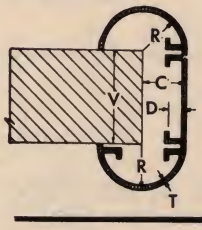
round without protection type 706-A



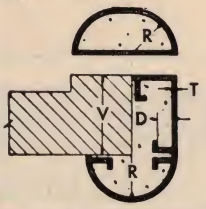
with column protection type 706-B



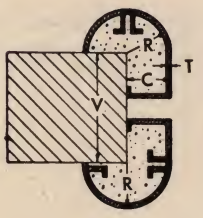
oval for wall type 707-A



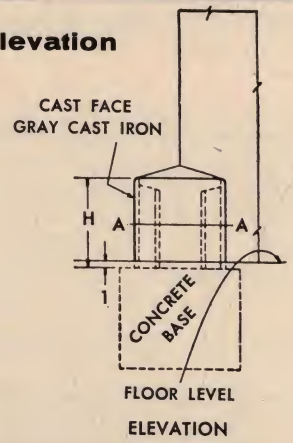
for sliding doors type 707-B



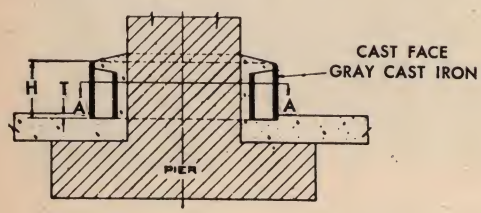
for elevating doors type 707-C



elevation

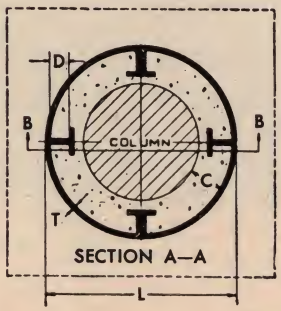


Section AA for ARMORED CONCRETE wheel guards for columns shown at right

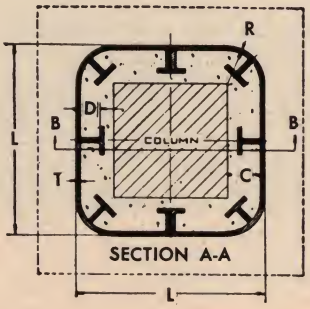


for columns

round type 710-A

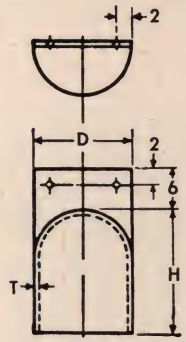


square type 710-B rectangular type 710-C



b bolted type

180°: type 649

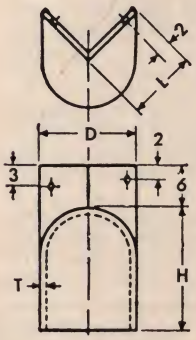


- made of finest quality close-grained grey iron
- bolt holes: ⅞ in. diam, cored
- grout hole: only when specified

guarantee: for 10 years
for other sizes, write for information

D	T	H-12	H-18	H-24	H-30	H-36	H-42	H-48
8	⅞	22800	22801	22802	22803	22804	22805	22806
10	⅞	22807	22808	22809	22810	22811	22812	22813
12	⅞	22814	22815	22816	22817	22818	22819	22820
14	⅞	22821	22822	22823	22824	22825	22826	22827
16	⅞	22828	22829	22830	22831	22832	22833	22834
18	1	22835	22836	22837	22838	22839	22840	22841
20	1	22842	22843	22844	22845	22846	22847	22848
22	1	22849	22850	22851	22852	22853	22854	22855
24	1	22856	22857	22858	22859	22860	22861	22862

90°: type 647



- made of finest quality close-grained grey iron
- bolt holes: ⅞ in. diam, cored
- grout hole: only when specified

guarantee: for 10 years

for other sizes, write for information

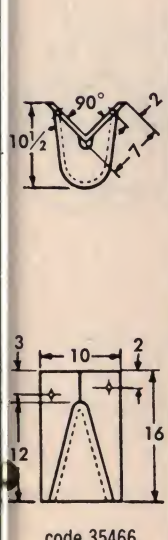
D	L	T	H-12	H-18	H-24	H-30	H-36	H-42	H-48
8	5⅝	⅞	22700	22701	22702	22703	22704	22705	22706
10	7 1/16	⅞	22707	22708	22709	22710	22711	22712	22713
12	8½	⅞	22714	22715	22716	22717	22718	22719	22720
14	9⅞	⅞	22721	22722	22723	22724	22725	22726	22727
16	11 5/16	⅞	22728	22729	22730	22731	22732	22733	22734
18	12 11/16	1	22735	22736	22737	22738	22739	22740	22741
20	14⅛	1	22742	22743	22744	22745	22746	22747	22748
22	15 9/16	1	22749	22750	22751	22752	22753	22754	22755
24	17	1	22756	22757	22758	22759	22760	22761	22762

90°: type 648

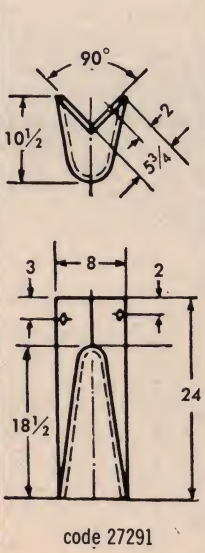
- made of finest quality close-grained grey iron
- thickness: ⅞ to 1 in.
- bolt holes: ⅞ in. diam, cored
- grout hole: only when specified

guarantee: for 10 years

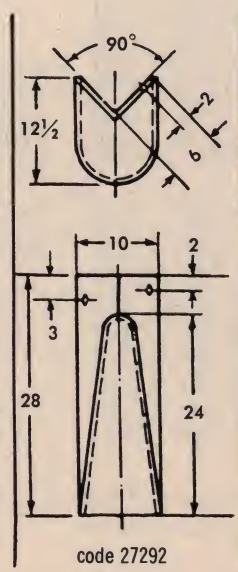
ordering: by code number



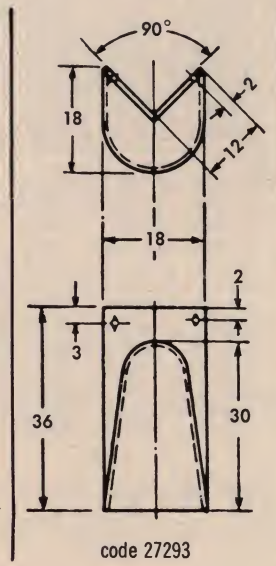
code 35466



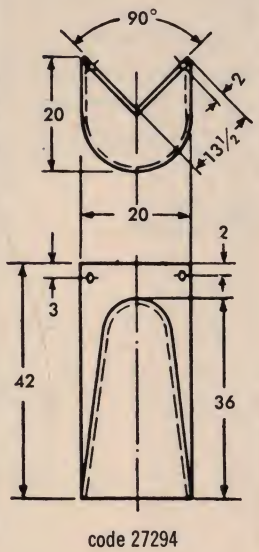
code 27291



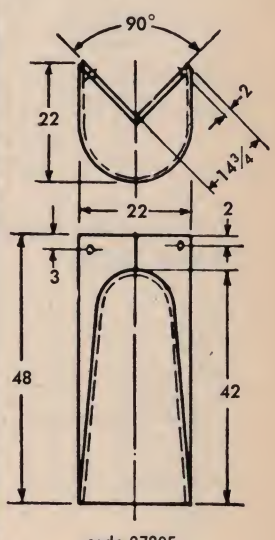
code 27292



code 27293



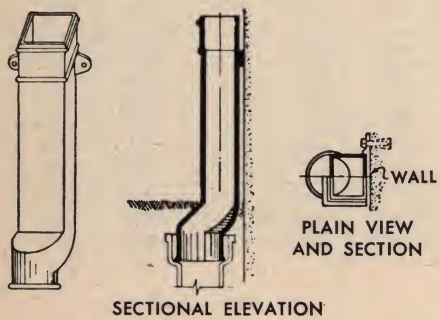
code 27294



code 27295

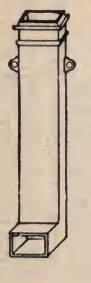
9a square, rectangular

for soil pipe connection type 209



for surface drain type 210

SQUARE OR RECTANGULAR



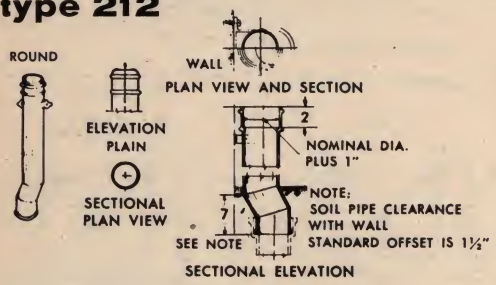
lengths 24-in. and longer furnished with one lug fastened to shoe 4 in. below top by ¼ csk machine screw; type 209 offset, on specification, for base

ordering: specify type number and code number (from table)

length in.	dimensions, in.													
	2 x 2	2 x 3	2 x 4	3 x 3	3 x 4	3 x 5	4 x 4	4 x 5	4 x 6	4 x 8	5 x 5	5 x 8	6 x 6	6 x 8
type 209														
12	34000	34008	39800	34016	34025	22240	34033	34041	37700	37710	34850	37720	37730	39500
18	34001	34009	39801	34017	34026	22241	34034	34042	37701	37711	34851	37721	37731	39501
24	34002	34010	39802	34018	34027	22242	34035	34043	37702	37712	34852	37722	37732	39502
30	34003	34011	39803	34019	34028	22243	34036	34044	37703	37713	34853	37723	37733	39503
36	34004	34012	39804	34021	34029	22244	34037	34045	37704	37714	34854	37724	37734	39504
42	34005	34013	39805	34022	34030	22245	34038	34046	37705	37715	34855	37725	37735	39505
48	34006	34014	39806	34023	34031	22246	34039	34047	37706	37716	34856	37726	37736	39506
54	34007	34015	39807	34024	34032	22247	34040	34048	37707	37717	34857	37727	37737	39507
60	34500	34502	39808	34504	34506	22248	34508	34510	37708	37718	34858	37728	37738	39508
66	22380	22381	39809	22382	22383	22249	22384	22385	22386	22387	34859	22388	22389	22390
72	34501	34503	39810	34505	34507	22250	34509	34511	37709	37719	34860	37729	37739	39509
84	39400	39401	39811	34402	39403	22251	39404	39405	39406	39407	34861	39408	39409	39510
type 210														
12	14800	14812	14824	14836	14848	14860	14872	14884	14896	14908	14920	14932	14944	14956
18	14801	14813	14825	14837	14849	14861	14873	14885	14897	14909	14921	14933	14945	14957
24	14802	14814	14826	14838	14850	14862	14874	14886	14898	14910	14922	14934	14946	14958
30	14803	14815	14827	14839	14851	14863	14875	14887	14899	14911	14923	14935	14947	14959
36	14804	14816	14828	14840	14852	14864	14876	14888	14900	14912	14924	14936	14948	14960
42	14805	14817	14929	14841	14853	14865	14877	14889	14901	14913	14925	14937	14949	14961
48	14806	14818	14830	14842	14854	14866	14878	14890	14902	14914	14926	14938	14950	14962
54	14807	14819	14831	14843	14855	14867	14879	14891	14903	14915	14927	14939	14951	14963
60	14808	14820	14832	14844	14856	14868	14880	14892	14904	14916	14928	14940	14952	14964
66	14809	14821	14833	14845	14857	14869	14881	14893	14905	14917	14929	14941	14953	14965
72	14810	14822	14834	14846	14858	14870	14882	14894	14906	14918	14930	14942	14954	14966
84	14811	14823	14835	14847	14859	14871	14883	14895	14907	14919	14931	14943	14955	14967

9b circular

for soil pipe connection type 212



for surface drainage type 213

ROUND



length in.	diameter, in.				
	3	4	5	6	8
type 212					
12	34300	34308	34316	34324	20100
18	34301	34309	34317	34325	20101
24	34302	34310	34318	34326	20102
30	34303	34311	34319	34327	20103
36	34304	34312	34320	34328	20104
42	34305	34313	34321	34329	20105
48	34306	34314	34322	34330	20106
54	34307	34315	34323	34331	20107
60	34332	34334	34336	34338	20108
72	34333	34335	34337	34339	20109
type 213					
12	34400	34410	34420	34430	20110
18	34401	34411	34421	34431	20111
24	34402	34412	34422	34432	20112
30	34403	34413	34423	34433	20113
36	34404	34414	34424	34434	20114
42	34405	34415	34425	34435	20115
48	34406	34416	34426	34436	20116
54	34407	34417	34427	34437	20117
60	34408	34418	34428	34438	20118
72	34409	34419	34429	34439	20119

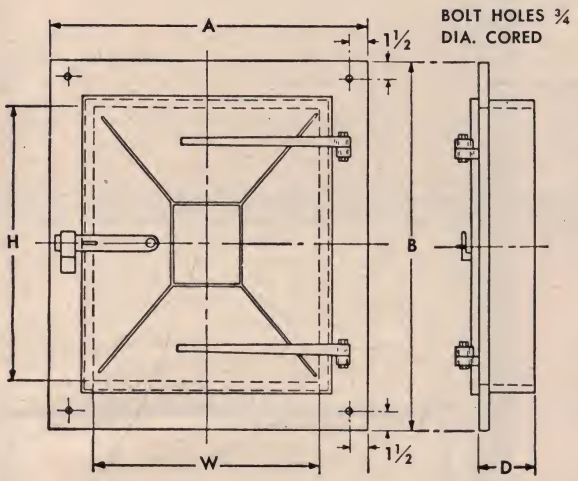
All lugs fastened to shoe by ¼ csk machine screw—4 inches below top.
No lugs furnished on 12" and 18" length. One lug on larger sizes.
Any pattern offset on specification for base.

lengths 24-in. and longer with one lug 4 in. below top, fastened to shoe by ¼ csk machine screw; type 212 offset, on specification, for base

ordering: specify type number and code number (from table)

10a clean-out frame with door

type 633



variations: milled bearing surfaces on frame and door; padlock provision; baffle plates; arched top; provision for fire brick; gas tight service

ordering: specify type number (633) and code number (from table)

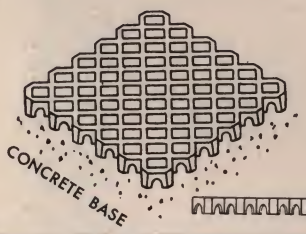
W	H	A	B	dimension D, in. 4	6	8	10	12
4	6	10¾	12¾	63000	63001	63002	63003	63004
6	8	12¾	14¾	63005	63006	63007	63008	63009
8	10	14¾	16¾	63010	63011	63012	63013	63014
10	10	16¾	16¾	63015	63016	63017	63018	63019
	12	16¾	18¾	63020	63021	63022	63023	63024
12	8	18¾	14¾	63025	63026	63027	63028	63029
	10	18¾	16¾	63030	63031	63032	63033	63034
	12	18¾	18¾	63035	63036	63037	63038	63039
	16	18¾	22¾	63040	63041	63042	63043	63044
	18	18¾	24¾	63045	63046	63047	63048	63049
15	9	21¾	15¾	63050	63051	63052	63053	63054
16	16	22¾	22¾	63055	63056	63057	63058	63059
	10	22¾	16¾	63060	63061	63062	63063	63064
	20	22¾	26¾	63065	63066	63067	63068	63069
	24	22¾	30¾	63070	63071	63072	63073	63074
18	18	24¾	24¾	63075	63076	63077	63078	63079
	24	24¾	30¾	63080	63081	63082	63083	63084
	30	24¾	36¾	63085	63086	63087	63088	63089
20	16	26¾	22¾	63090	63091	63092	63093	63094
	20	26¾	26¾	63095	63096	63097	63098	63099
	30	26¾	36¾	63100	63101	63102	63103	63104
24	18	30¾	24¾	63105	63106	63107	63108	63109
	24	31	31	63110	63111	63112	63113	63114
	30	31	37	63115	63116	63117	63118	63119
	36	31	43	63120	63121	63122	63123	63124
	42	31	49	63125	63126	63127	63128	63129
	48	31	55	63130	63131	63132	63133	63134
30	24	37	31	63135	63136	63137	63138	63139
	30	37	37	63140	63141	63142	63143	63144
	36	37	43	63145	63146	63147	63148	63149
	48	37	55	63150	63151	63152	63153	63154
36	36	43	43	63155	63156	63157	63158	63159
	48	43	55	63160	63161	63162	63163	63164
	72	43	79	63165	63166	63167	63168	63169
42	48	49	55	63170	63171	63172	63173	63174

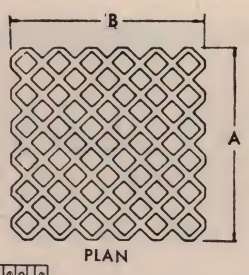
10b grid — cast iron • for concrete floors

type 493

to provide a surface resistant to traction, impact, abrasion and corrosion

ordering: give type number (493) and code number (from table)





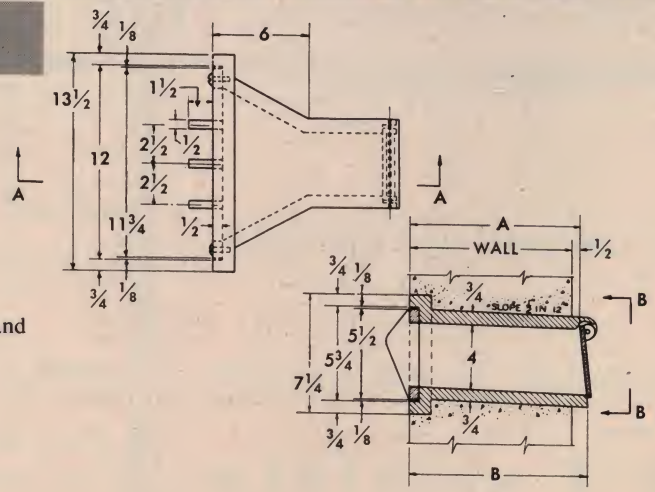
A	B	code no.
thickness, T: ¾ in.		
12	12	38495-G
	24	37428-G
thickness, T: 1⅛ in.		
12	6	17526-G
	12	17524-G
	24	17525-G

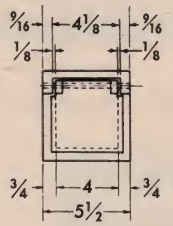
10c wall scuppers

type 658

dimension B may be varied

ordering: give type number (658) and code number (from table)





wall size	A	B	code no.
6	6½	7	22150
8	8½	9	22151
10	10½	11	22152
12	12½	13	22153

casting materials

For the construction and allied industries, FLOCKHART FOUNDRY COMPANY manufactures a great variety of castings in the materials described below. Unless otherwise noted, these castings are made in the finest quality grey cast iron.

cast iron: Conforms to ASTM specification A-48 (latest revision), class 30. Develops a minimum ultimate tensile strength of 30,000 psi. Because of its mechanical and physical properties and its low cost, cast iron, properly designed, is a highly desirable construction metal.

ductile (modular) iron: Conforms to ASTM specification A-339 (latest revision) in two grades: alloy 60–45–10 which develops minimum tensile strength of 60,000 psi, minimum yield strength of 45,000 psi, minimum elongation of 10%; and alloy 80–60–03 which develops minimum tensile strength of 80,000 psi, minimum yield strength of 60,000 psi, minimum elongation of 3%. This newly developed metal combines the superior qualities of cast iron with the strength of cast steel. Because of its relatively low cost, it is admirably suited for construction castings. Additional information on request.

aluminum: Conforms to ASTM specification B-26 (latest revision) in two grades, depending on strength and weight required: alloy S 5A-F and alloy SG 70A-T6. Both alloys have been selected for their particular resistance to atmospheric corrosion.

cast steel: Conforms to ASTM specification A-27 (latest revision) in two grades: alloy 60–30 and alloy 65–35.

cast bronze: to specification

NOTE: *All* FLOCKHART *castings are furnished* non-*painted. Long years of experience have shown that painting does not protect cast iron; it merely conceals any defects that might appear in the casting.*

engineering service

With every FLOCKHART product goes 80 full years of sound, practical experience —experience in construction castings, armored concrete, wheel guards and related castings. All this experience is available to architects, highway engineers, municipal officials—through the FLOCKHART engineering staff.

For assistance in applying the products in this catalog or the designing of special products—address our Department of Research and Development.

other castings

for sewers, waterworks: air vents for water mains, lift valves, pressure relief valves, slide valves, shear gate valves, wall sleeves, sludge shoes, stop plank grooves

for bridges: scuppers, railing posts, rockers for fixed and expansion bearings . . . *write for complete drawing file*

for docks: bollards, bitts, cleats, chocks—made in cast iron, ductile iron, cast steel; capstan frames and covers, mooring eyes . . . *write for dock castings catalog, no. 143*

also: adaptor rings, port bases, airport mooring eyes, chimney caps, heavy-duty platform guards

FLOCKHART FOUNDRY COMPANY

ARMORED CONCRETE DIVISION

CONSTRUCTION CASTINGS DIVISION

founded 1879

p. o. box 5037 Ironbound Station 84 POLK STREET, NEWARK 5, N. J.

telephones: Newark: Mitchell 2-7190
New York: COrtlandt 7-0290

telegraph: WUX Newark

representatives in key areas throughout the country; for the name of the representative in your locality, write FLOCKHART headquarters

6i
Mc

architects'-engineers' reference manual

standard construction castings

- highway castings
- manholes
- frames—grates
- downspout boots
- wheel guards
- misc. castings

grilles
brick vents
tile vents
ventilators
see sections nos. 20d/Mc
architectural file
14c industrial
Mc const'n. file

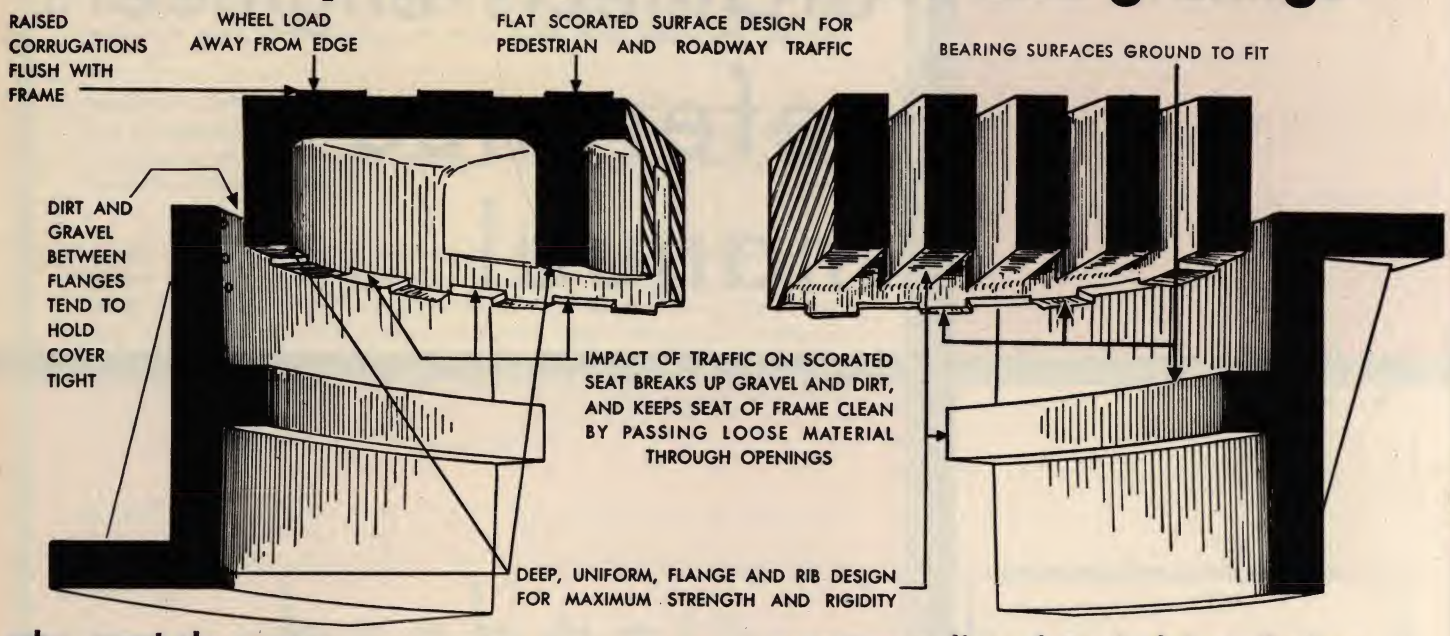
catalog c-60

a.i.a. file 14-a-1
14-a-23

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901 n. throckmorton
fort worth, texas

mckinley iron works
p. o. box 790, fort worth, texas

rattle proof manhole covers and gratings



why manhole covers and gratings rattle

Inferior manhole covers or gratings may rattle if the seats are not flat or because of warpage due to bad design or irregular sections in the casting.

BUT: experience proves that the majority of all manholes used today rattle because dirt builds up irregularly and very hard on the bearing seat of the manhole frame, even though the bearing seat may originally be finished perfectly flat.

SCORATED manhole cover and grating seats not only allow the dirt to pass through but the traffic that packs the dirt on the regular manhole seats keeps the seats clean when SCORATED manhole cover seats are used. McKINLEY manhole frames, covers and gratings are NOT made from patterns designed for the horse and buggy traffic of 50 to 100 years ago. Many of these types are still being sold and installed today.

McKINLEY manhole covers and gratings are designed for modern day EXTRA HEAVY TRAFFIC. They have been approved by U. S. ARMY ENGINEERS in air fields for the heaviest bomber planes that weigh many hundreds of tons.

McKINLEY manhole covers and gratings with DEEP flange and rib construction and uniform sections are the last word in modern casting design and give the ultimate in strength and rigidity.

acceptance list of typical installations

AMERICAN BROADCASTING CO., SAN FRANCISCO, CALIF.
PURDUE UNIVERSITY, WEST LAFAYETTE, IND.
ST. THOMAS MOORE HOSPITAL, CANON CITY, COLO.
EL PASO PUBLIC LIBRARY, EL PASO, TEXAS
NEW YORK INTERNATIONAL AIRPORT, NEW YORK, N. Y.
EVERGREEN PRESBYTERIAN CHURCH, MEMPHIS, TENN.
AMON CARTER FIELD, FORT WORTH-DALLAS, TEXAS
ATOMIC ENERGY COMMISSION, LOS ALAMOS, N. M.
SOUTHWESTERN BELL TELEPHONE CO., LAWRENCE, KANSAS
FIRST METHODIST CHURCH, COLORADO SPRINGS, COLO.
UNIVERSITY OF KANSAS, LAWRENCE, KANSAS
U.S. POST OFFICE BUILDING, CHANUTE, KANSAS
SOUTHWESTERN BELL TELEPHONE CO., CISCO, TEXAS
CONTINENTAL BAKING CO., KANSAS CITY, KANSAS
HIGHLAND UNIVERSITY, LAS VEGAS, N. M.
PACIFIC MUTUAL BUILDING, SAN FRANCISCO, CALIF.
GOOD SAMARITAN HOSPITAL, DAYTON, OHIO.
GENERAL ELECTRIC CORP., RICHLAND, WASHINGTON
E. I. DUPONT CO., AUGUSTA, GA.
GENERAL MOTORS CORP., ARLINGTON, TEXAS
AIR CONTROL TOWER, DUGWAY, UTAH
WOLTERS AIR FORCE BASE, MINERAL WELLS, TEXAS
ABILENE AIR FORCE BASE, ABILENE, TEXAS
CARSWELL AIR FORCE BASE, FORT WORTH, TEXAS
SMOKY HILL AIR FORCE BASE, SALINA, KANSAS
HANSCOM AIR FORCE BASE, BEDFORD, MASS
FORT DEVENS, AYER, MASS.
WEBB AIR FORCE BASE, BIG SPRING, TEXAS

general specifications for construction castings

Castings shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage defects, swells, cracks, or other injurious defects. Surface shall be smooth and true to pattern, material used in manufacture of castings shall conform to ASTM specifications A48-48, class 40 iron and/or U. S. Federal Government specification QQ1-652 for gray iron castings.

All castings shall be free from fins, burrs, sand and slag. All castings shall be stress relieved by shot blasting and shall be painted with one coat of rust inhibitive zinc chromate.

McKinley manhole covers and gratings *cost no more!!*

STRENGTH TEST REPORT

3028 10M 9-56

P. B. PORTER, Ch. E., Pres. J. B. BAIRD, Vice Pres. B. P. HARPER, B. S., Vice Pres.

SOUTHWESTERN LABORATORIES
FORT WORTH DALLAS HOUSTON MIDLAND BEAUMONT

Fort Worth, Texas 9-7-56 File No. 164.7

Report of tests on Cast Iron Covers and Grates
To McKinley Iron Works
Received from Same Date Rec'd 9-4-56
Identification Marks As Shown

ITEM	DIMENSIONS	TOTAL LOAD*	P.S.I.**
28" Manhole Cover	28" Dia.,3" Thick	169,500	1178
28" Manhole Grate	28" Dia.,3" Thick	215,250	1496
TGH - 16	16" x 48" x 2½"	251,250	1746
TCH - 16	16" x 48" x 2½"	160,000	1112
TGH - 20	20" x 48" x 2½"	177,000	1230
TCH - 20	20" x 48" x 2½"	152,500	1060

REMARKS: *Total Load as shown above does not include 167.75 lbs. weight of bearing block and lead shield.

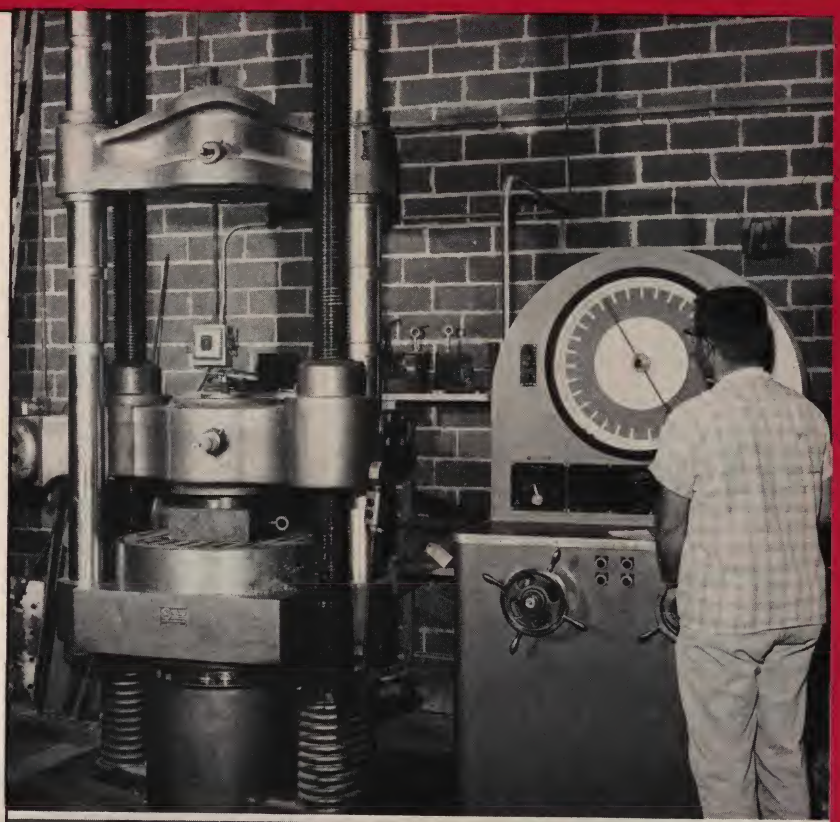
** Bearing surface consisted of 12" x 12" cast block centered on specimens. Weight of block is included in P.S.I.

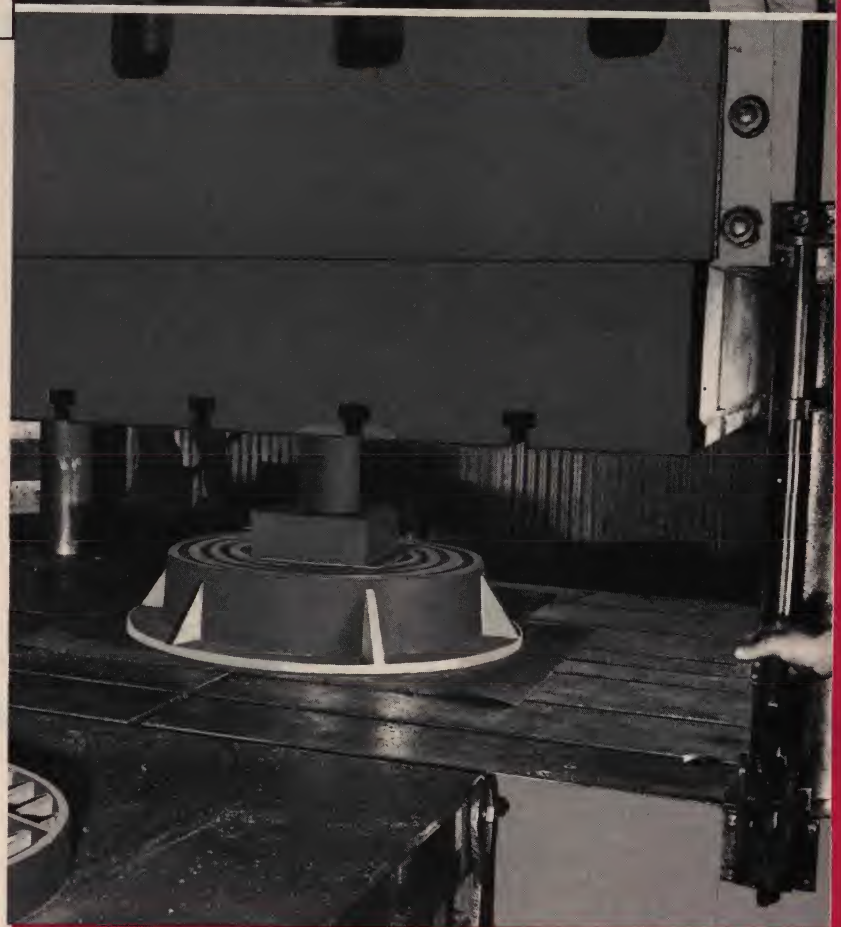
SOUTHWESTERN LABORATORIES

3cc: McKinley Iron Works

Lab. No. B-8443

Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products





the tests show the total static loads on 12" x 12" square area in the exact center of each specimen tested. a ¼" inch lead sheet was placed between the specimen and a 12" x 12" x 4" cast iron block, giving an even distribution of load over the one square foot area in the center of the specimens.

the 28 inch manhole cover tested is the cover used in our B28H-N28H-A28H-T28 manhole frames and covers. the 28 inch round grating tested is the grating used in our BG28H-NG28H-AG28H-TG28H manhole frames and grating, pages 5 and 6.

the TGH16-TCH16-TGH20 and TCH20 are shown on page 11. these are covers and gratings especially designed for long trenches across heavy highway traffic ways and for trenches in air fields where heavy loads are encountered.

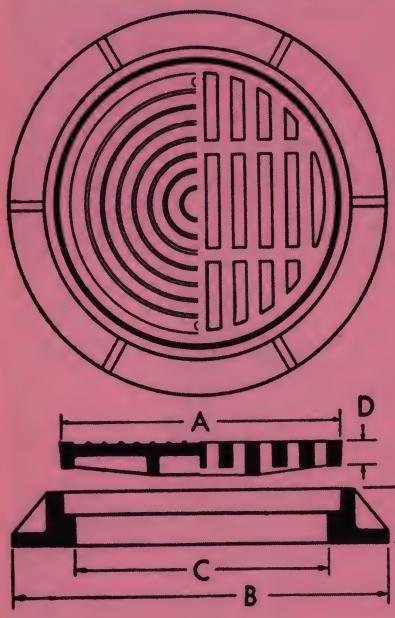
to meet the demands of extra-heavy traffic, we have designed (with the assistance of the U. S. Army Engineers) gratings and covers that we feel will withstand the heavy highway and air field loads.

in order that engineers will have verification of what loads our extra-heavy duty grates and covers will actually hold, we had the southwestern testing laboratories conduct the certified tests shown.

a distinct advantage of using heavy iron gratings and covers is that they never rust out and do not weaken with age. their lifetime is indefinite.

TGH - 16	Replaced By	TGHB - 14
TCH - 16	Heavier and	TCHB - 14
TGH - 20	Bolted Type	TCHB - 18
TCH - 20		TGHB - 18

type A bottom flange heavy and extra-heavy duty





cover



grate



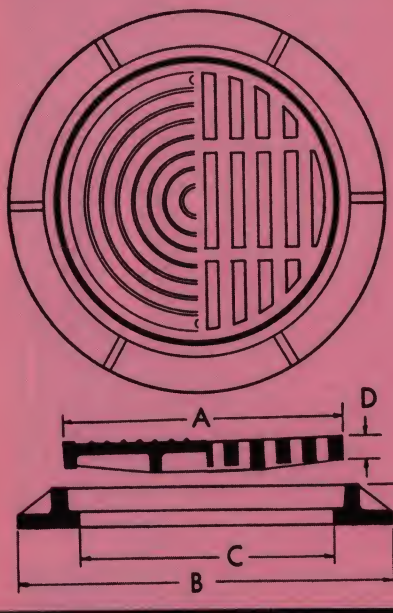
frame

types A and T can be furnished water tight as illustrated on p. 5.

An economical heavy and extra-heavy duty frame and cover designed for average size manholes.

type No.		dimensions, in.				
cover	grate	A	B	C	D	H
heavy duty						
A12M	AG12M	12	16	10	1¼	3
A15M	AG15M	15	20	13	1¼	3
A18M	AG18M	18	23	16	1¼	3
A20M	AG20M	20	26	18	1¼	4
A22M	AG22M	22	29	20	1¼	4
A24M	AG24M	24	32	22	2	4
A24AM	AG24AM	24	32	22	2	5
A24BM	AG24BM	24	32	22	2¼	6
A24CM	AG24CM	24	32	22	2	8½
A26M	AG26M	26	34	24	2	4
A28M	AG28M	28	36	26	2	4
A30M	AG30M	30	38	28	2	4
A32M	AG32M	32	40	30	2	4
A34M	AG34M	34	42	32	2	4
A36M	AG36M	36	44	34	2	4
A38M	AG38M	38	46	36	2	4
extra-heavy duty						
A12H	AG12H	12	16	10	1½	3½
A15H	AG15H	15	20	13	1½	3½
A18H	AG18H	18	23	16	2	4
A20H	AG20H	20	26	18	2	4
A22H	AG22H	22	29	20	2	4
A24H	AG24H	24	32	22	3	5
A26H	AG26H	26	34	24	3	5
A28H	AG28H	28	37	26	3	5
A30H	AG30H	30	38	28	3	5
A32H	AG32H	32	40	30	3	5½
A34H	AG34H	34	42	32	3	5½
A36H	AG36H	36	44	34	3	5½
A38H	AG38H	38	46	36	3	6

type T for pit or slab construction heavy and extra-heavy duty





cover



grate



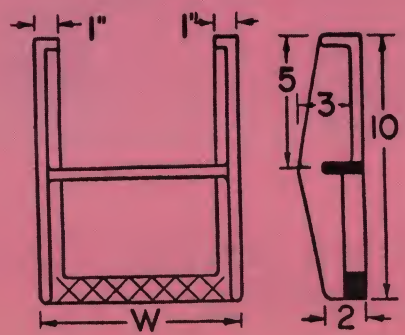
frame

types A and T can be furnished water tight as illustrated on p. 5.

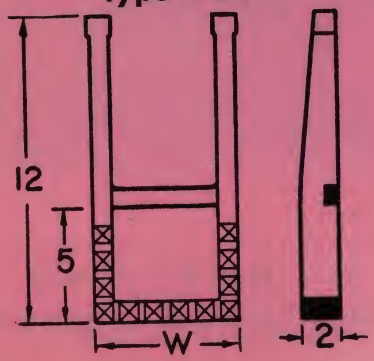
The shallow frame makes this unit suitable for both slab and pit construction. It is inexpensive and available in both heavy and extra heavy duty.

type no.		dimensions, in.				
cover	grate	A	B	C	D	H
heavy duty						
T12M	TG12M	12	16	10	1¼	2
T15M	TG15M	15	20	13	1¼	2
T18M	TG18M	18	23	16	1¼	2
T20M	2G20M	20	26	18	1¼	2
T22M	TG22M	22	27	20	1¼	2
T24M	TG24M	24	32	22	2	2¾
T26M	TG26M	26	34	24	2	2¾
T28M	TG28M	28	36	26	2	2¾
T30M	TG30M	30	38	28	2	2¾
T32M	TG32M	32	40	30	2	2¾
T34M	TG34M	34	42	32	2	2¾
T36M	TG36M	36	44	34	2	2¾
T38M	TG38M	38	46	36	2	2¾
extra heavy duty						
T12H	TG12H	12	16	10	1½	2½
T15H	TG15H	15	20	13	1½	2½
T18H	TG18H	18	23	16	2	3
T20H	TG20H	20	26	18	2	3
T22H	TG22H	22	27	20	2	3
T24H	TG24H	24	32	22	3	4
T26H	TG26H	26	34	24	3	4
T28H	TG28H	28	36	26	3	4
T30H	TG30H	30	38	28	3	4
T32H	TG32H	32	40	30	3	4
T34H	TG34H	34	42	32	3	4
T36H	TG36H	36	44	34	3	4
T38H	TG38H	38	46	36	3	4

type MS2



type MS3



safety manhole steps

Treading surface of all manhole steps impregnated with small abrasive grit for maximum safety under dry, wet or greasy conditions. They never rust-out.

Both types furnished in following widths:
W., in.: 6, 8, 10, 12, 15, 18, 20, 24

heavy duty

bottom flange type no.		top flange type no.		dimensions, in.				
cover	grate	cover	grate	A	B	C	D	H
B12M	BG12M	N12M	NG12M	12	16	10	1¼	3
B15M	BG15M	N15M	NG15M	15	20	13	1¼	3
B18M	BG18M	N18M	NG18M	18	23	16	1¼	3½
B20M	BG20M	N20M	NG20M	20	26	18	1¼	3½
B22M	BG22M	N22M	NG22M	22	29	20	1¼	3½
B24M	BG24M	N24M	NG24M	24	32	22	2	5¼
B26M	BG26M	N26M	NG26M	26	35	24	2	5¼
B27M	BG27M	N27M	NG27M	27	37	25	2	5¼
B28M	BG28M	N28M	NG28M	28	38	26	2	5¼
B30M	BG30M	N30M	NG30M	30	40	28	2	5¼
B32M	BG32M	N32M	NG32M	32	42	30	2	5¼
B34M	BG34M	N34M	NG34M	34	43	32	2	5¼
B36M	BG36M	N36M	NG36M	36	46	34	2	5¼
B38M	BG38M	N38M	NG38M	38	48	36	2	5¼
B42M	BG42M	N42M	NG42M	42	52	39½	2	5¼
B48M	BG48M	N48M	NG48M	48	58	45½	2	5¼
B54M	BG54M	N54M	NG54M	54	64	51½	2	5¼
B60M	BG60M	N60M	NG60M	60	70	57½	2	5¼

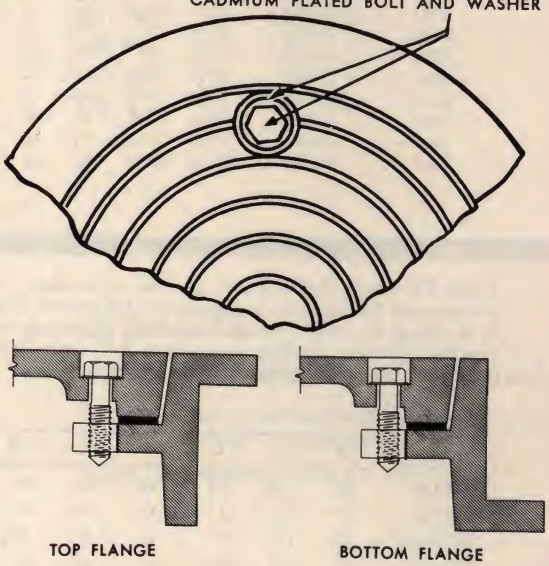
extra heavy duty

B12H	BG12H	N12H	NG12H	12	16	10	1½	3½
B15H	BG15H	N15H	NG15H	15	20	13	1½	3½
B18H	BG18H	N18H	NG18H	18	23	16	2	5¼
B20H	BG20H	N20H	NG20H	20	26	18	2	5¼
B22H	BG22H	N22H	NG22H	22	29	20	2	5¼
B24H	BG24H	N24H	NG24H	24	32	22	3	7½
B26H	BG26H	N26H	NG26H	26	35	24	3	7½
B27H	BG27H	N27H	NG27H	27	37	25	3	7½
B28H	BG28H	N28H	NG28H	28	38	26	3	7½
B30H	BG30H	N30H	NG30H	30	40	28	3	7½
B32H	BG32H	N32H	NG32H	32	42	30	3	7½
B34H	BG34H	N34H	NG34H	34	43	32	3	7½
B36H	BG36H	N36H	NG36H	36	46	34	3	7½
B38H	BG38H	N38H	NG38H	38	48	36	3	7½
B42H	BG42H	N42H	NG42H	42	52	39½	3	7½
B44H	BG44H	N44H	NG44H	44	57	41½	3	7½*
B48H	BG48H	N48H	NG48H	48	58	45½	3	7½
B54H	BG54H	N54H	NG54H	54	64	51½	3	7½
B60H	BG60H	N60H	NG60H	60	70	57½	3	7½

* N44H, B44H, or SB44H can be furnished with a 24" diameter flush type center access cover—10" deep frame also optional.

Square bottom flange eliminates need for concrete forming over square pit.

Specify type SB instead of B when desiring square bottom flange.

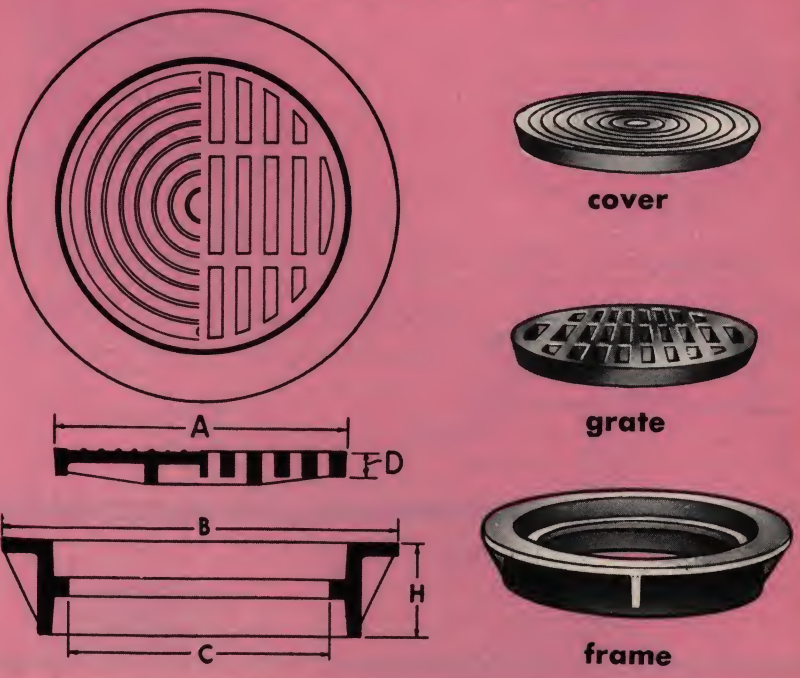


water and pressure tight manholes

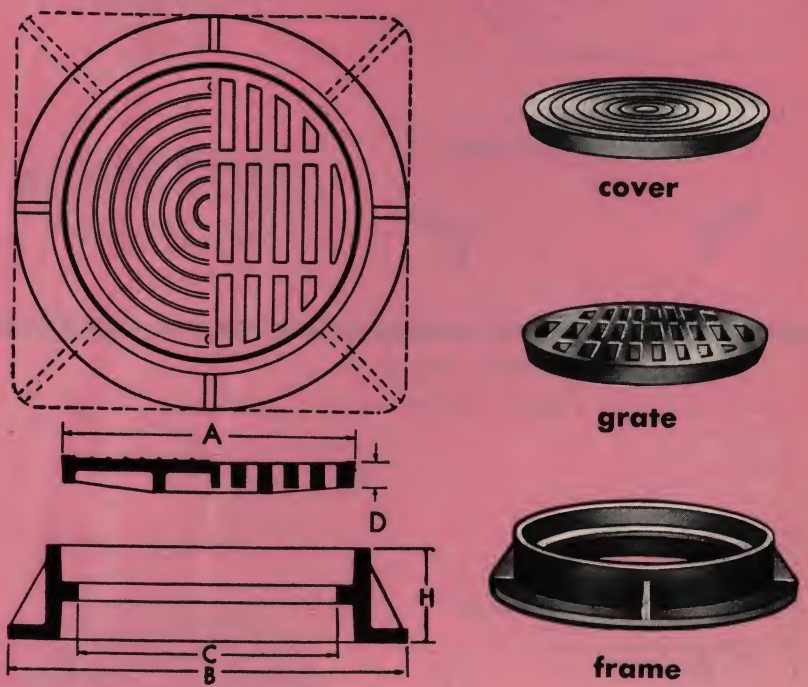
When specifying water or pressure tight manholes add symbols WP before N, B, or SB.

All N, B, and SB manholes can be furnished water and pressure tight as per above details when specified.

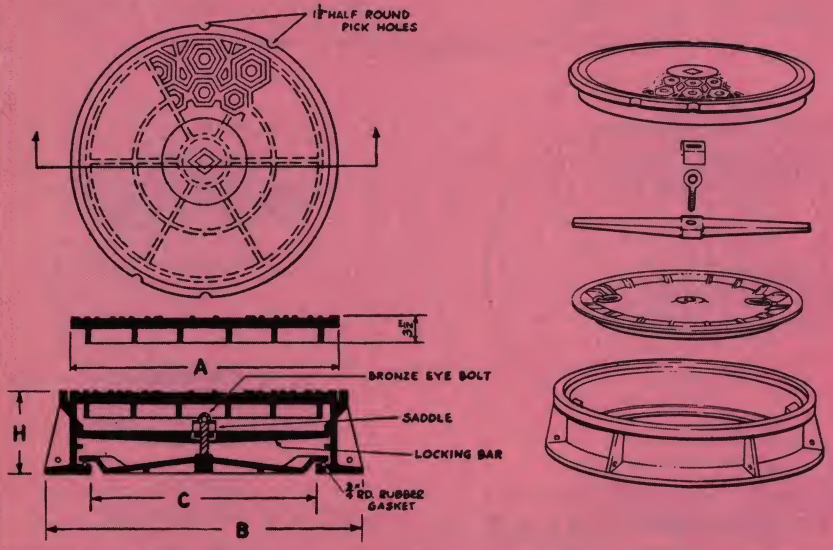
type N top flange
heavy and extra-heavy duty



type B round bottom flange
type SB square bottom flange
heavy and extra-heavy duty



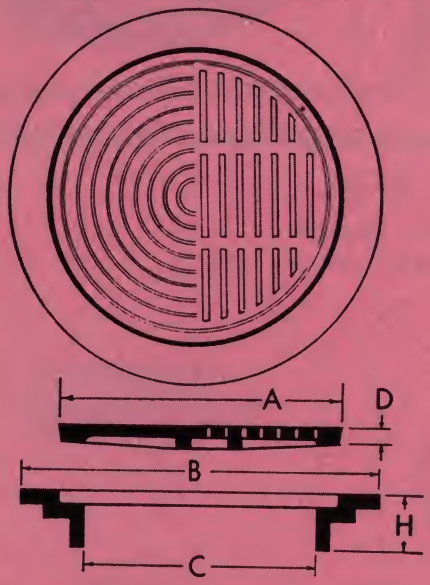
type D-C heavy duty, water tight

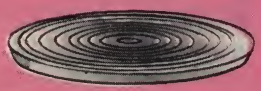


Inside cover is water or gas tight. Provision is made for a padlock to discourage tampering and burglary. Furnished with bar, saddle and brass screw for locking with padlock. Ideal for electrical or other hazardous applications.

type no.	A	B	C	H
DC24	30	38	24	10
DC30	36	42½	30	11

type S light duty





cover



grate



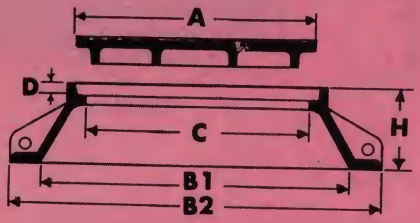
frame

Can be furnished water tight—drilled, countersunk, flat head screws

Abrasive non-skid surface furnished upon request for sidewalk and interior applications. Grate openings narrow for safe walking surface.

type no.		dimensions, in.				
cover	grate	A	B	C	D	H
S 8L	SG 8L	8	9½	7		1
S10L	SG10L	10	11½	9		1
S12L	SG12L	12	13½	11		1
S14L	SG14L	14	15½	13	⅝	1
S16L	SG16L	16	18	15		1½
S18L	SG18L	18	20	17		1½
S20L	SG20L	19½	22	18		4
S24L	SG24L	23½	26	22	¾	6
S26L	SG26L	25½	29½	24	¾	4
S30L	SG30L	29½	33½	28	¾	4
S32L	SG32L	31½	35½	30	¾	4
S36L	SG36L	35½	39½	34	¾	4
S38L	SG38L	37½	41½	36	¾	4

type ET heavy duty
light duty





Type ET Manhole is used by the American Telephone and Telegraph Company and Western Union. It is used to cover large manhole openings with smaller covers. Round base can be extended to any size rectangular base upon specifications.

type nos.	A	D	C	B1	B2	H
ET24M	26	1⅜	24	35	43	10
ET27M	29	1⅜	27	38	46	10
ET27MX	29	1⅜	27	34	46	5⅝
ET30M	32	1⅜	30	41	49	10
ET30MX	32	1⅜	30	37	49	5⅝

type LHA hinged cover and frame abrasive surface

**flush type—brass hinges—
locking hasp—padlock pocket—
lifting ring, all recessed**

type nos. W	L	A	B	E	F	H	no. of covers
LHM— 18	x 24	22	28	16¾	22¾	2⅝	1
LHM— 20	x 20	24	24	18¾	18¾	2⅝	1
LHM— 24	x 24	28	28	22¾	22¾	2⅝	1
LHM— 30	x 24	28¼	28¾	28¾	22¾	2⅝	1
LHM— 30	x 30	34¼	34¼	28¾	28¾	4	1
LHM— 36	x 30	40	34¼	34¼	28¾	4½	1†
LHM— 36	x 36	40	40	34¼	34¼	5½	1†
LHM— 36	x 24	42	30	34	22	5	2
LHM— 40	x 20	46	26	38	18	5	2
LHM— 48	x 24	54	30	46	22	5	2
LHM— 60	x 24	66	30	58	22	5	2
LHM— 60	x 30	66	36	58	28	5	2
LHM— 72	x 30	78	36	70	28	5	2
LHM— 72	x 36	78	42	70	34	5	2

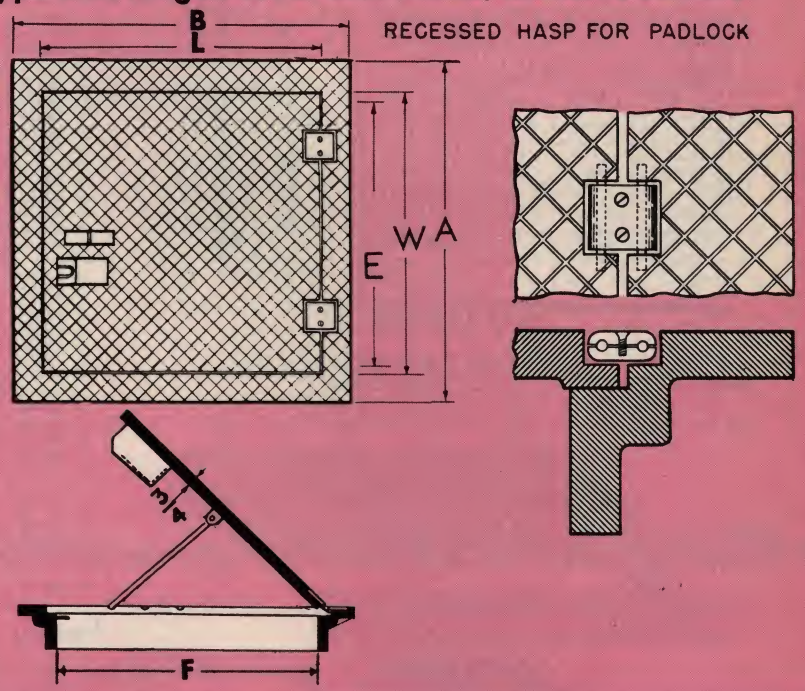
flush mounted brass hinges will allow full 180 degree door opening. padlock pocket, locking hasp and lifting hook all recessed below surface.

can be furnished without padlock pocket and locking hasp. adjustable catch furnished when specified.

can be furnished with abrasive top surface on both cover and frame when specified.

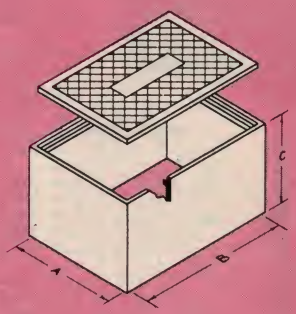
† 3 hinges per cover

type LHA hinged cover and frame, abrasive surface



type MB meter or valve box

type	A	B	C
MB8B	8	8	10
MB8C	8	8	8
MB8D	8	8	6
MB12B	12	12	10
MB12C	12	12	8
MB12D	12	12	6
MB14	14	22	10



valve box type VB5

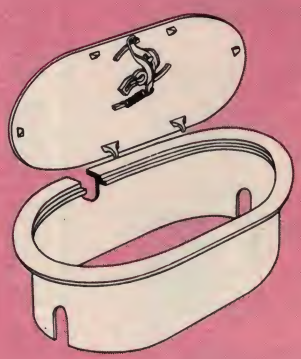


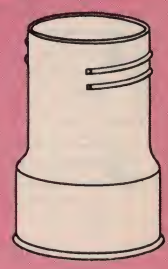
Adjustable Overall Length 1'-8½" to 2'-3½"

type LMB meter box and cover with lock

lock operated with handle sized key for quick reading of meter. tamper-proof.

inside dimensions: 13" x 21" x 11" deep.





**mckinley iron works
fort worth, texas**

standard construction castings

rectangular covers — gratings — frames

light duty

cover & J frame type no's W L	grating & J frame type no's W L	cover & R frame type no's W L	grating & R frame type no's W L	D	A	B	E	F	HJ	HR	no. covers or grates
JL 14x14	JGL 14x14	RL 14x14	RGL 14x14	¾	17	17	12¼	12¼	1⅜	2¼	1
JL 16x16	JGL 16x16	RL 16x16	RGL 16x16	¾	19	19	14¼	14¼	1⅜	2¼	1
JL 18x18	JGL 18x18	RL 18x18	RGL 18x18	¾	22	22	16¼	16¼	1⅜	2¼	1
JL 18x24	JGL 18x24	RL 18x24	RGL 18x24	¾	22	28	16¼	22¼	1⅜	2¼	1
JL 18x30	JGL 18x30	RL 18x30	RGL 18x30	¾	22	34	16¼	28¼	1⅜	2¼	1
JL 18x36	JGL 18x36	RL 18x36	RGL 18x36	¾	22	40	16¼	34¼	1⅜	2¼	1
JL 18x48	JGL 18x48	RL 18x48	RGL 18x48	¾	23	53	16¼	46¼	1⅜	2¼	2
JL 20x20	JGL 20x20	RL 20x20	RGL 20x20	¾	24	24	18¼	18¼	1⅜	2¼	1
JL 20x24	JGL 20x24	RL 20x24	RGL 20x24	¾	24	28	18¼	22¼	1⅜	2¼	1
JL 20x30	JGL 20x30	RL 20x30	RGL 20x30	¾	24	34	18¼	28¼	1⅜	2¼	1
JL 20x36	JGL 20x36	RL 20x36	RGL 20x36	¾	24	40	18¼	34¼	1⅜	2¼	1
JL 20x48	JGL 20x48	RL 20x48	RGL 20x48	¾	25	53	18½	46½	1⅜	2¼	2
JL 24x24	JGL 24x24	RL 24x24	RGL 24x24	¾	28	28	22¼	22¼	1⅜	2¼	1
JL 24x30	JGL 24x30	RL 24x30	RGL 24x30	¾	28	34	22¼	28¼	1⅜	2¼	1
JL 24x36	JGL 24x36	RL 24x36	RGL 24x36	¾	28	40	22¼	34¼	1⅜	2¼	1
JL 24x40	JGL 24x40	RL 24x40	RGL 24x40	¾	28	44	22¼	38¼	1⅜	2¼	1
JL 24x48	JGL 24x48	RL 24x48	RGL 24x48	¾	29	53	22½	46½	1⅜	2¼	2
JL 24x60	JGL 24x60	RL 24x60	RGL 24x60	¾	29	65	22½	58½	1⅜	2¼	2
JL 24x72	JGL 24x72	RL 24x72	RGL 24x72	¾	29	77	22½	70½	1⅜	2¼	2
JL 30x30	JGL 30x30	RL 30x30	RGL 30x30	¾	35	35	28¼	28¼	1⅜	2¼	1
JL 30x36	JGL 30x36	RL 30x36	RGL 30x36	¾	35	41	28¼	34¼	1⅜	2¼	1
JL 30x48	JGL 30x48	RL 30x48	RGL 30x48	¾	35	53	28½	46½	1⅜	2¼	2
JL 30x60	JGL 30x60	RL 30x60	RGL 30x60	¾	35	65	28½	58½	1⅜	2¼	2
JL 30x72	JGL 30x72	RL 30x72	RGL 30x72	¾	35	77	28½	70½	1⅜	2¼	2
JL 36x36	JGL 36x36	RL 36x36	RGL 36x36	¾	41	41	34½	34½	1⅜	2¼	1
JL 36x48	JGL 36x48	RL 36x48	RGL 36x48	¾	41	53	34½	46½	1⅜	2¼	2
JL 36x60	JGL 36x60	RL 36x60	RGL 36x60	¾	41	65	34½	58½	1⅜	2¼	2
JL 36x72	JGL 36x72	RL 36x72	RGL 36x72	¾	41	77	34½	70½	1⅜	2¼	2
JL 42x42	JGL 42x42	RL 42x42	RGL 42x42	¾	48	48	40½	40½	1⅜	2¼	1

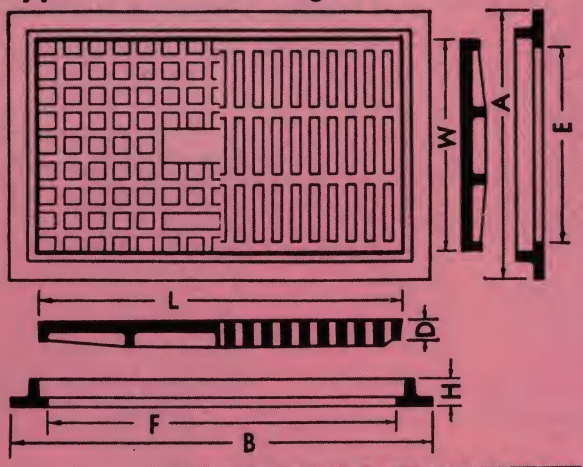
heavy duty

JM 16x16	JGM 16x16	RM 16x16	RGM 16x16	1¼	20	20	14½	14½	2	3½	1
JM 18x18	JGM 18x18	RM 18x18	RGM 18x18	1¼	23	23	16½	16½	2	3½	1
JM 18x24	JGM 18x24	RM 18x24	RGM 18x24	1¼	23	29	16½	22½	2	3½	1
JM 18x30	JGM 18x30	RM 18x30	RGM 18x30	1¼	23	35	16½	28½	2	3½	1
JM 18x36	JGM 18x36	RM 18x36	RGM 18x36	1¼	23	41	16½	34½	2	3½	1
JM 18x48	JGM 18x48	RM 18x48	RGM 18x48	1½	24	54	16	46	2½	3½	2
JM 20x20	JGM 20x20	RM 20x20	RGM 20x20	1½	25	25	18	18	2½	4	1
JM 20x24	JGM 20x24	RM 20x24	RGM 20x24	1½	25	29	18	22	2½	4	1
JM 20x30	JGM 20x30	RM 20x30	RGM 20x30	1½	25	35	18	28	2½	4	1
JM 20x36	JGM 20x36	RM 20x36	RGM 20x36	1½	25	41	18	34	2½	4	1
JM 20x48	JGM 20x48	RM 20x48	RGM 20x48	1½	27	55	18	46	2½	4	2
JM 24x24	JGM 24x24	RM 24x24	RGM 24x24	2	30	30	22	22	3	5	1
JM 24x30	JGM 24x30	RM 24x30	RGM 24x30	2	30	36	22	28	3	5	1
JM 24x36	JGM 24x36	RM 24x36	RGM 24x36	2	30	42	22	34	3	5	1
JM 24x40	JGM 24x40	RM 24x40	RGM 24x40	2	30	46	22	38	3	5	1
JM 24x48	JGM 24x48	RM 24x48	RGM 24x48	2	31	55	22	46	3	5	2
JM 24x60	JGM 24x60	RM 24x60	RGM 24x60	2	32	68	22	58	3	5	2
JM 24x72	JGM 24x72	RM 24x72	RGM 24x72	2	32	80	22	70	3	5	2
JM 30x30	JGM 30x30	RM 30x30	RGM 30x30	2	37	37	28	28	3	5	1
JM 30x36	JGM 30x36	RM 30x36	RGM 30x36	2	37	43	28	34	3	5	1
JM 30x48	JGM 30x48	RM 30x48	RGM 30x48	2	38	56	28	46	3	5	2
JM 30x60	JGM 30x60	RM 30x60	RGM 30x60	2	38	68	28	58	3	5	2
JM 30x72	JGM 30x72	RM 30x72	RGM 30x72	2	38	80	28	70	3	5	2
JM 36x36	JGM 36x36	RM 36x36	RGM 36x36	2	43	43	34	34	3	5	1
JM 36x48	JGM 36x48	RM 36x48	RGM 36x48	2	44	56	34	46	3	5	2
JM 36x60	JGM 36x60	RM 36x60	RGM 36x60	2	44	68	34	58	3	5	2
JM 36x72	JGM 36x72	RM 36x72	RGM 36x72	2	44	80	34	70	3	5	2
JM 42x42	JGM 42x42	RM 42x42	RGM 42x42	2	50	50	40	40	3	5	1

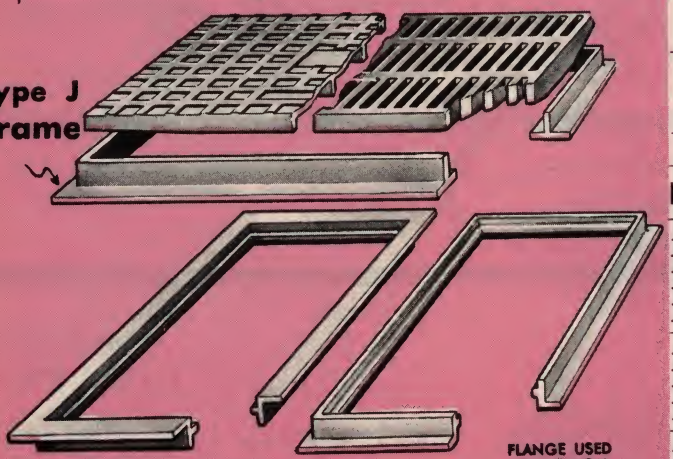
extra heavy duty

JH 16x16	JGH 16x16	RH 16x16	RGH 16x16	2	21	21	14	14	3	5	1
JH 18x18	JGH 18x18	RH 18x18	RGH 18x18	2	24	24	16	16	3	5	1
JH 18x24	JGH 18x24	RH 18x24	RGH 18x24	2	24	30	16	22	3	5	1
JH 18x30	JGH 18x30	RH 18x30	RGH 18x30	2	24	36	16	28	3	5	1
JH 18x36	JGH 18x36	RH 18x36	RGH 18x36	2	24	42	16	34	3	5	1
JH 18x48	JGH 18x48	RH 18x48	RGH 18x48	2	25	55	16	46	3	5	2
JH 20x20	JGH 20x20	RH 20x20	RGH 20x20	2½	26	26	18	18	3½	6	1
JH 20x24	JGH 20x24	RH 20x24	RGH 20x24	2½	26	30	18	22	3½	6	1
JH 20x30	JGH 20x30	RH 20x30	RGH 20x30	2½	26	36	18	28	3½	6	1
JH 20x36	JGH 20x36	RH 20x36	RGH 20x36	2½	26	42	18	34	3½	6	1
JH 20x48	JGH 20x48	RH 20x48	RGH 20x48	2½	28	56	18	46	3½	6	2
JH 24x24	JGH 24x24	RH 24x24	RGH 24x24	3	32	32	22	22	4	7	1
JH 24x30	JGH 24x30	RH 24x30	RGH 24x30	3	32	38	22	28	4	7	1
JH 24x36	JGH 24x36	RH 24x36	RGH 24x36	3	32	44	22	34	4	7	1
JH 24x40	JGH 24x40	RH 24x40	RGH 24x40	3	32	48	22	38	4	7	1
JH 24x48	JGH 24x48	RH 24x48	RGH 24x48	3	33	57	22	46	4	7	2
JH 24x60	JGH 24x60	RH 24x60	RGH 24x60	3	33	69	22	58	4	7	2
JH 24x72	JGH 24x72	RH 24x72	RGH 24x72	3	33	81	22	70	4	7	3
JH 30x30	JGH 30x30	RH 30x30	RGH 30x30	3	38	38	28	28	4	7	1
JH 30x36	JGH 30x36	RH 30x36	RGH 30x36	3	38	44	28	34	4	7	1
JH 30x48	JGH 30x48	RH 30x48	RGH 30x48	3	39	57	28	46	4	7	2
JH 30x60	JGH 30x60	RH 30x60	RGH 30x60	3	39	69	28	58	4	7	2
JH 30x72	JGH 30x72	RH 30x72	RGH 30x72	3	39	81	28	70	4	7	3
JH 36x36	JGH 36x36	RH 36x36	RGH 36x36	3	44	44	34	34	4½	7	1
JH 36x48	JGH 36x48	RH 36x48	RGH 36x48	3	45	57	34	46	4½	7	2
JH 36x60	JGH 36x60	RH 36x60	RGH 36x60	3	45	69	34	58	4½	7	2
JH 36x72	JGH 36x72	RH 36x72	RGH 36x72	3	45	81	34	70	4½	7	3
JH 42x42	JGH 42x42	RH 42x42	RGH 42x42	3	51	51	40	40	4½	7	1
JH 48x48	JGH 48x48	RH 48x48	RGH 48x48	3	59	59	46	46	4½	7	1

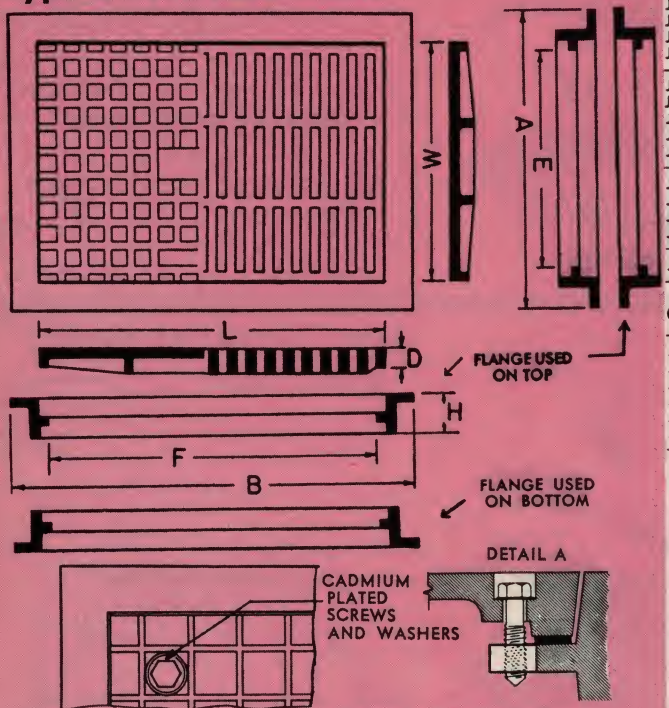
type J bottom flange



type J frame



type R reversible frame



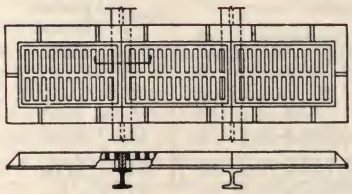
water and pressure tight rectangular frames and covers

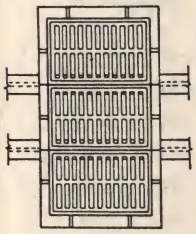
All sizes using one cover can be furnished water and pressure tight as per detail A, in both J and R types. For R types, specify whether flange to be used on top or bottom.

All frames with 2 or more covers or gratings are bolted at all four corners.

All covers 24 x 30 and larger have 2 lifting hooks.

arrangement A





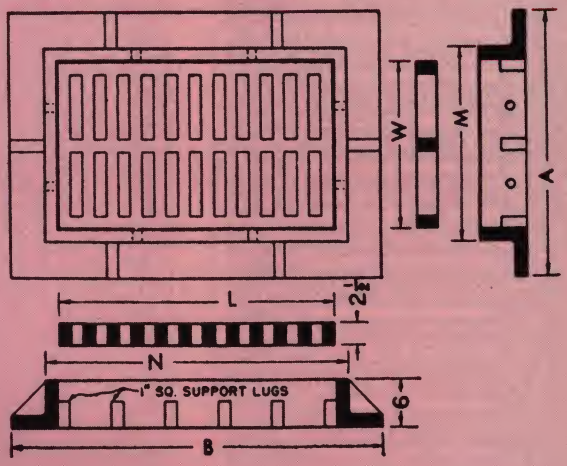
arrangement B

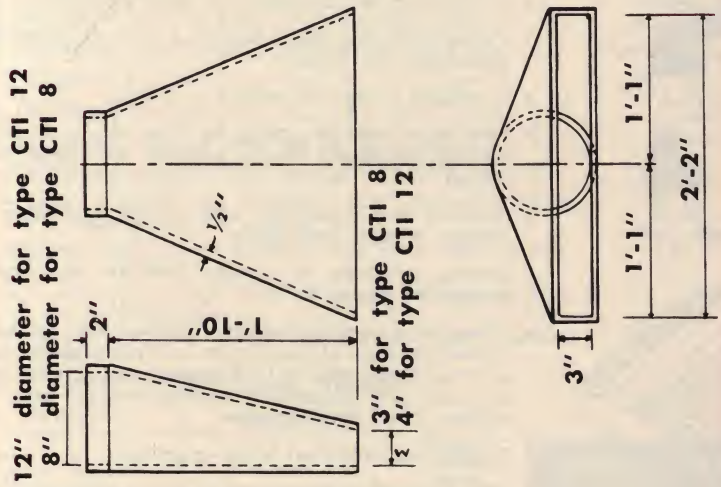
For curb inlets, frames are cast without flange next to curb. Any number of grates may be used together in arrangement "A" or "B". When ordered for multiple installations, bottom flange is omitted and the two frames are provided with holes for bolting frames together. Non-corrosive I-beams used to support multiple grates. Bearing lugs are designed to prevent rocking of the grate.

type	W	L	A	B	M	N
K1H	16	30	26	38	18	32
K2H	16	36	26	44	18	38
K3H	18	30	28	38	20	32
K4H	18	36	28	44	20	38

I-Beams—Non-corrosive cast iron 4"x6"x¾" metal thickness

type K for inlet, heavy duty





type CTI

curb throat inlets for expressways



test data on double throat inlet

% grade	½	1	1½	2	2½	3½	4
efficiency	100	99	97½	96	93	87	85

for 6 foot pondering or 1½ inches of water at curb, capacity of inlet is 0.75 c.f.s. on a 4% grade (greater capacities on flatter grade) with a safety factor of one-third. at 0.75 c.f.s. actual test shows one throat carries two-thirds of water.

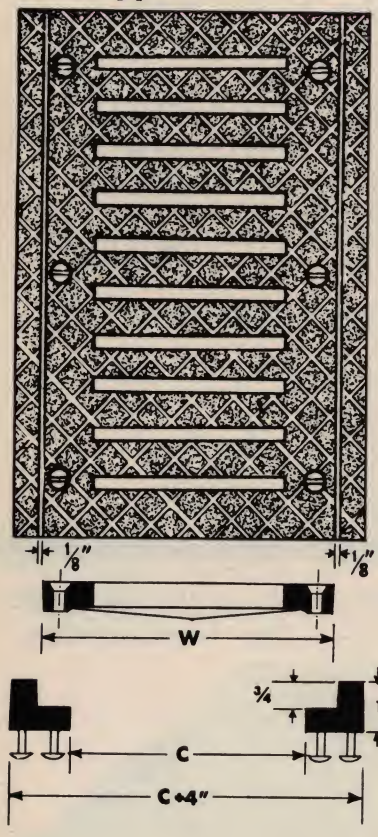


type DB drop ball (wrecking ball)

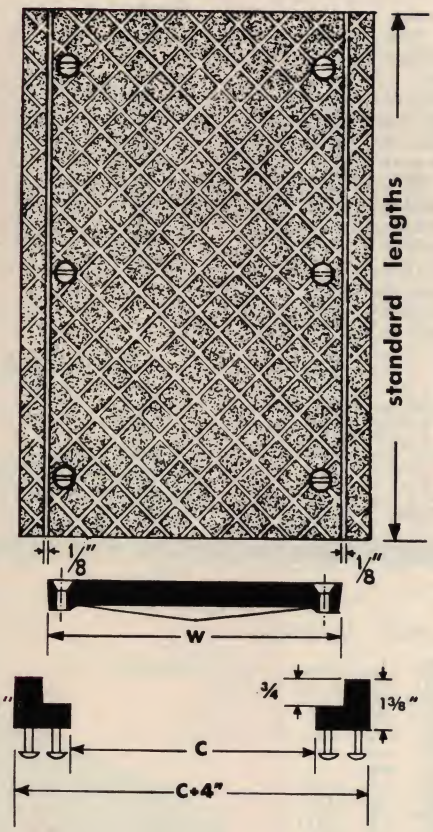
type	lbs.
DB 10	1000
DB 15	1500
DB 20	2000
DB 30	3000
DB 45	4500
DB 60	6000

- Eye Pin Replaceable
- Stand upright on small diameter boss

type TGLB



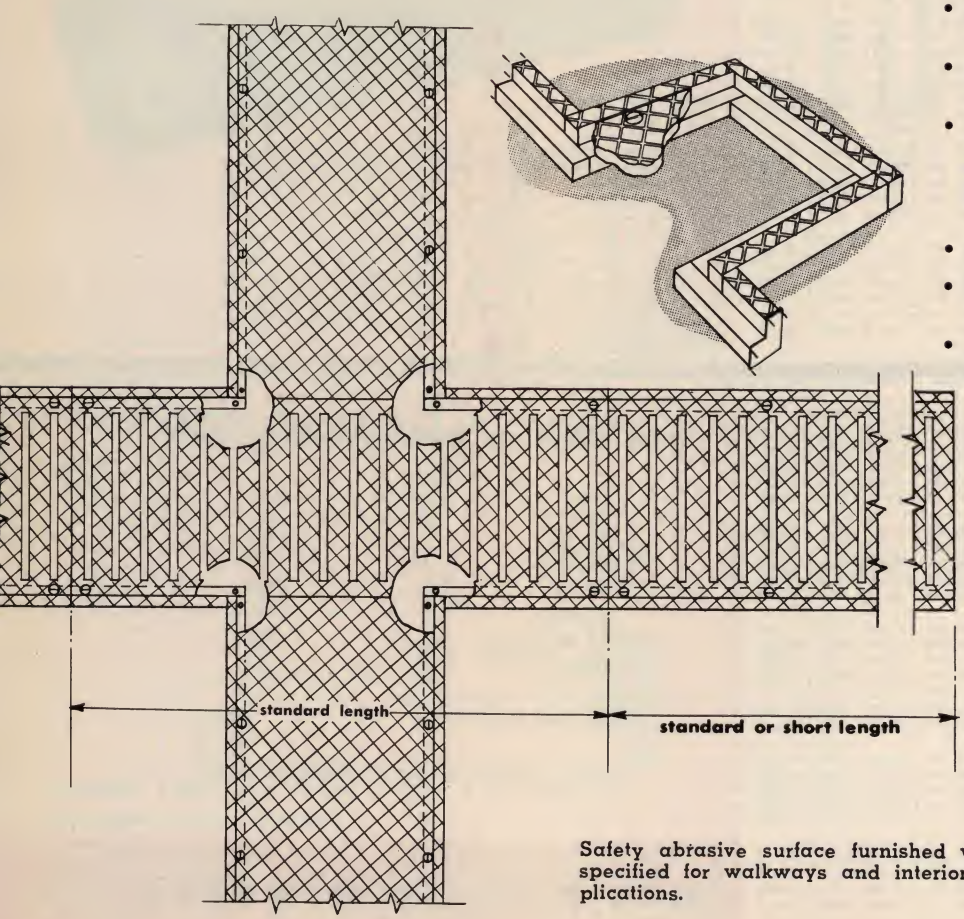
TCLB



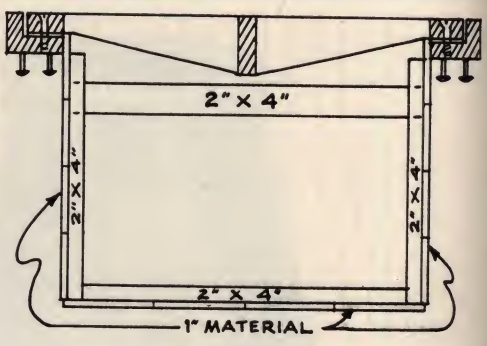
type TCLB and TGLB

type no.		width	clearance	cad plated screw size
cover	grating	W	C	
TCLB- 6	TGLB- 6	8	6	5/16
TCLB- 8	TGLB- 8	10	8	5/16
TCLB-10	TGLB-10	12	10	5/16
TCLB-12	TGLB-12	14	12	5/16
TCLB-14	TGLB-14	16	14	5/16
TCLB-16	TGLB-16	18	16	3/8
TCLB-18	TGLB-18	20	18	3/8
TCLB-22	TGLB-22	24	22	3/8
TCLB-24	TGLB-24	26	24	3/8
TCLB-30	TGLB-30	32	30	3/8
TCLB-36	TGLB-36	38	36	3/8
TCLB-42	TGLB-42	44	42	3/8

- Types TCLB-22 and TGLB-22 and narrower made in 3'-6" lengths with 3'-6" frames.
- Types TCLB-24 and TGLB-24 and wider made in 2'-0" lengths with 2'-0" frames.
- Covers and gratings are reinforced with ribs for extra factor of safety.
- 3/8" slots in TGLB grating for safe walking.
- Types TCLB and TGLB designed for walk areas and passenger car traffic.
- Furnished in iron, aluminum or bronze.
- Any length trench grating or cover made by using multiple standard length sections with short section(s).
- Different width gratings and covers may cross or branch at most any angle.
- Bearing surfaces of covers, gratings and frames ground for perfect fit.
- Covers and gratings bolted to frames with flat head screws for ease of installation and permanent insurance against rattling. Cadmium plated screws used on iron and aluminum, bronze screws used on bronze covers and gratings.
- End frames furnished when specified.
- Note illustration showing low cost installation forms that can be used with bolted types.
- Furnished in iron with plain cross-hatched surfaces unless otherwise specified.



Safety abrasive surface furnished when specified for walkways and interior applications.



Low cost forms and installation when grates and covers are bolted to frames when concrete is poured assuring perfect fit and alignment.

GENERAL INFORMATION

- Furnished in iron or aluminum.
- Different width trench covers and gratings may cross or branch at most any angle.
- Covers and gratings are reinforced with ribs for extra factor of safety.
- Bearing surfaces of covers, gratings and frames ground for perfect fit.
- Covers and gratings fasten to frames with hex head cadmium plated screws for ease of installation and permanent insurance against rattling.
- End frames furnished when specified.
- Furnished in iron unless otherwise specified.
- Note illustration on Page 10 showing low cost installation forms that can be used with bolted types.

type TCMB and TGMB

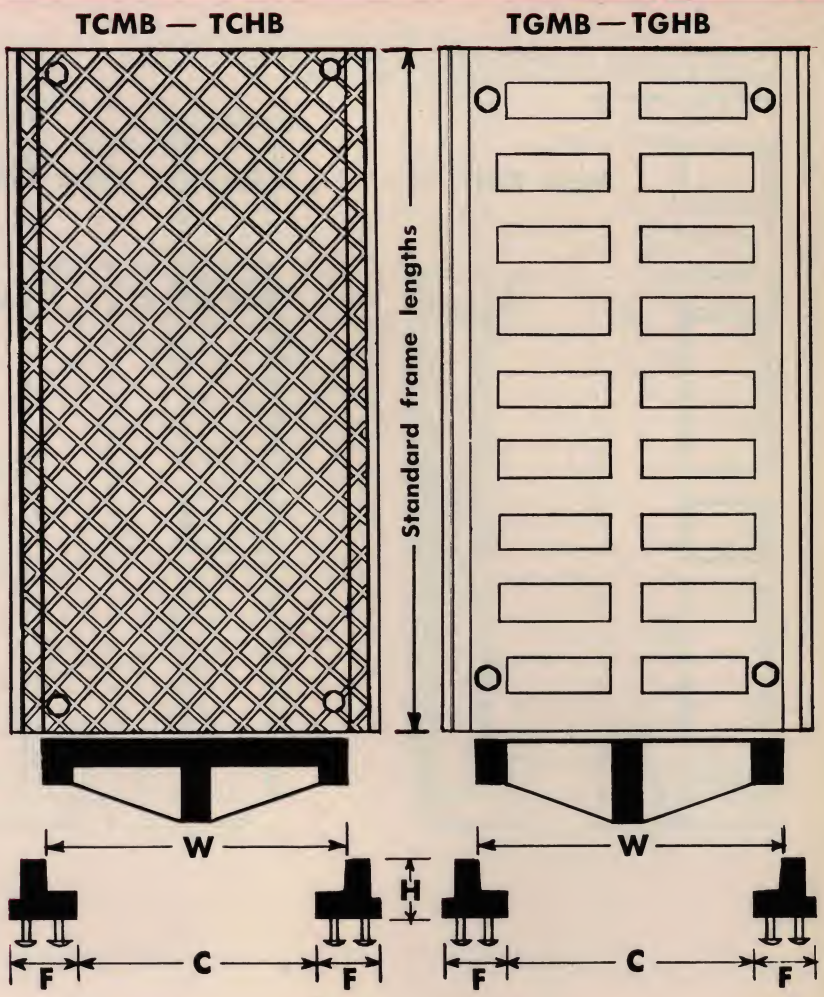
type no.		dimension in.					
cover	grating	W	C	D	H	F	long. center bars
TCMB- 6	TGMB- 6	8½	6	1¼	1¾	2⅛	0
TCMB- 8	TGMB- 8	10½	8	1¼	1¾	2⅛	0
TCMB-10	TGHB-10	12½	10	1¼	1¾	2⅛	1
TCMB-12	TGMB-12	14½	12	1¼	1¾	2⅛	1
TCMB-14	TCMB-14	16½	14	1¼	1¾	2⅛	1
TCMB-16	TGMB-16	18½	16	1¼	1¾	2⅛	2
TCMB-18	TGMB-18	20½	18	1¼	1¾	2⅛	2
TCMB-20	TGMB-20	22½	20	1½	2⅛	2¼	2
TCMB-22	TGMB-22	24½	22	1½	2⅛	2¼	2
TCMB-24	TGMB-24	26½	24	1½	2⅛	2¼	2
TCMB-26	TGMB-26	28½	26	1½	2⅛	2¼	3
TCMB-28	TGMB-28	30½	28	1½	2½	2¼	3
TCMB-30	TGMB-30	32½	30	1¾	2½	2½	3
TCMB-36	TGMB-36	38½	36	1¾	2½	2½	4
TCMB-42	TGMB-42	44½	42	2	3	2¾	5
TCMB-48	TGMB-48	50½	48	2	3	2¾	5

- Types TCMB-12 and TGMB-12 and narrower made in 3'-6" lengths with 3'-6" frames.
- Types TCMB-14 and TGMB-14 and wider made in 2'-0 lengths with 2'-0" frames.
- Covers and gratings bolted to frames with ⅜" hex head cadmium plated screws.
- Types TCMB and TGMB designed for regular roadway traffic.

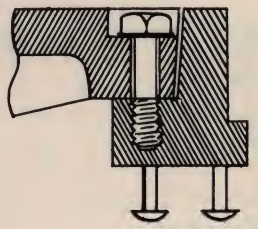
type TCHB and TGHB

type no.		dimension in.					
cover	grating	W	C	D	H	F	long. center bars
TCHB- 6	TGHB- 6	9	6	2	3¼	2½	0
TCHB- 8	TGHB- 8	11	8	2	3¼	2½	0
TCHB-10	TGHB-10	13	10	2	3¼	2½	1
TCHB-12	TGHB-12	15	12	2	3¼	2½	1
TCHB-14	TGHB-14	17	14	2½	3¾	2¾	1
TCHB-16	TGHB-16	19	16	2½	3¾	2¾	2
TCHB-18	TGHB-18	21	18	2½	3¾	2¾	2
TCHB-20	TGHB-20	23	20	2½	3¾	2¾	2
TCHB-22	TGHB-22	25	22	2½	3¾	2¾	2
TCHB-24	TGHB-24	27	24	3	4½	3	2
TCHB-26	TGHB-26	29	26	3	4½	3	3
TCHB-28	TGHB-28	31	28	3	4½	3	3
TCHB-30	TGHB-30	33	30	3	4½	3	3
TCHB-36	TGHB-36	39	36	3	4½	3	4
TCHB-42	TGHB-42	45	43	3	4½	3	5
TCHB-48	TGHB-48	51	48	3	4½	3	5

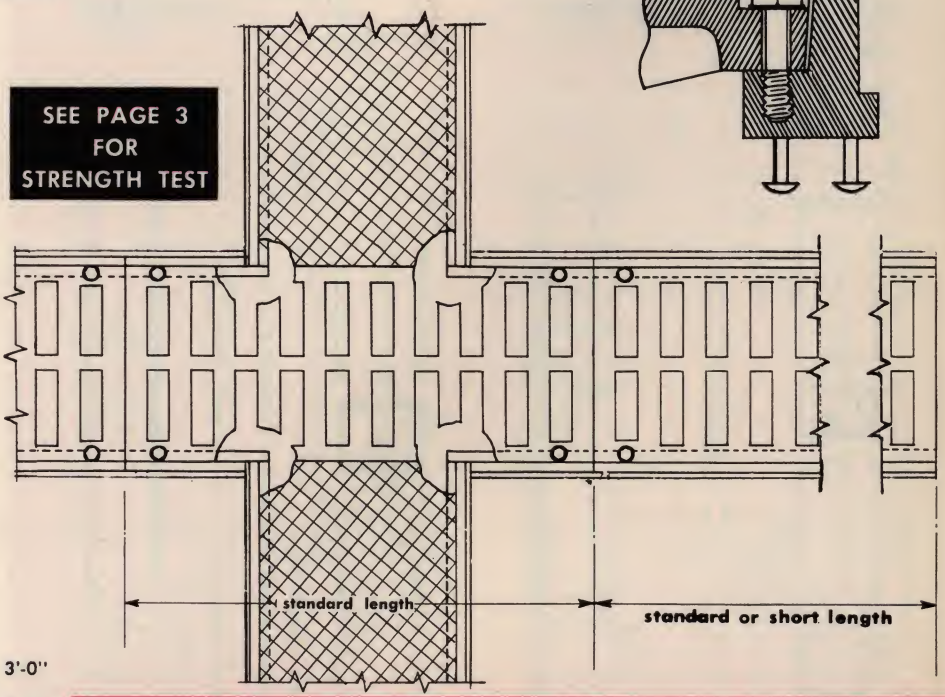
- Types TCHB-12 and TGHB-12 and narrower made in 3'-0" lengths with 3'-0" frames.
- Types TCHB-14 and TGHB-14 and wider made in 2'-0" lengths with 2'-0" frames.
- Covers and gratings bolted to frames with ½" cadmium plated hex head screws.
- Types TCHB and TGHB designed for double extra heavy roadway traffic and air field installations.



Covers and gratings bolted to frames with ½" cadmium plated hex head screws.

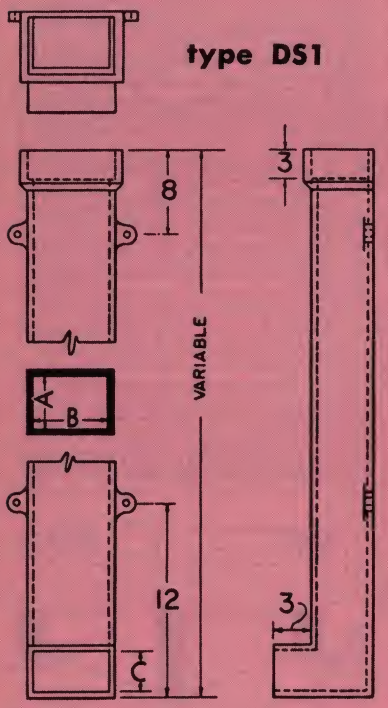


SEE PAGE 3 FOR STRENGTH TEST

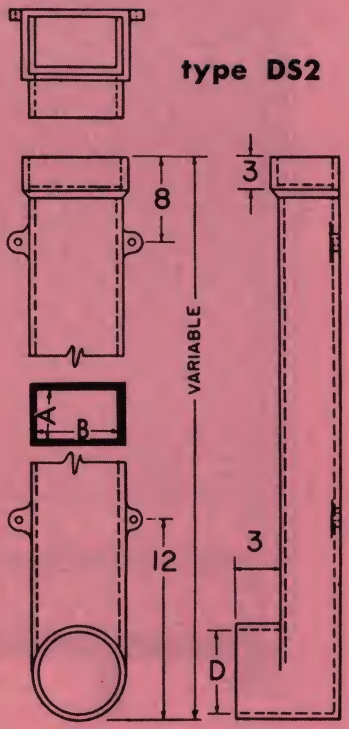


Furnished in iron primed with zinc chromate, unless specified aluminum sand-blasted, satin-finish or aluminum polished.

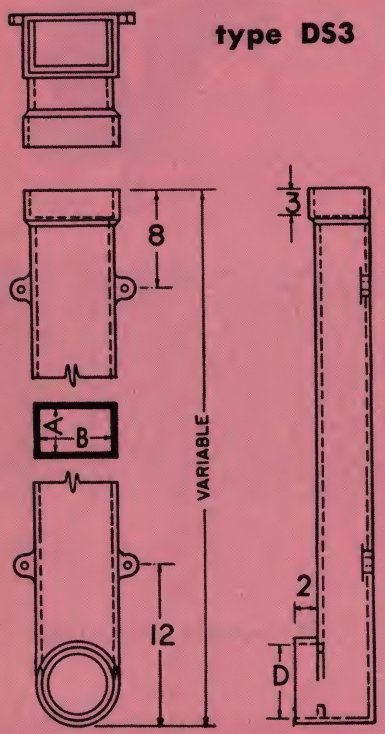
type DS1



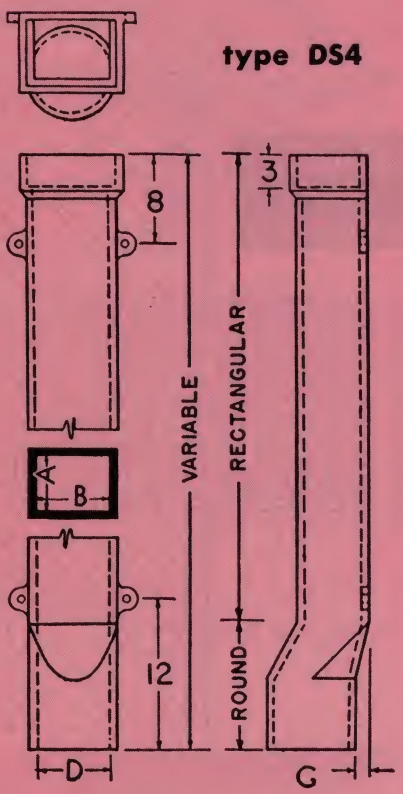
type DS2



type DS3



type DS4



All rectangular downspout boots are designed to fit flush with building wall—all round outlets fit standard vitrified, concrete and iron soil pipe.

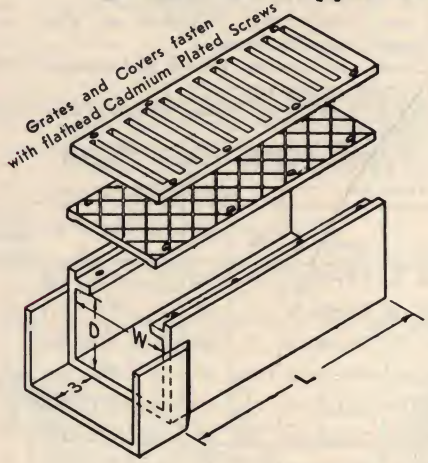
sizes A x B	dimension, in. C	D	G
3 x 4	3	4	1¼
3 x 5	3	5	1½
4 x 4	4	4	1¼
4 x 5	4	5	1½
4 x 6	4	6	1½
4 x 7	4	X	—
4 x 8	4	8	1¾
5 x 5	5	5	1½
5 x 6	5	6	1½
5 x 7	5	5	1½
5 x 8	5	8	1¾
6 x 6	6	6	1½
6 x 8	6	8	1¾
6 x 10	6	10	2
8 x 10	8	10	2¼

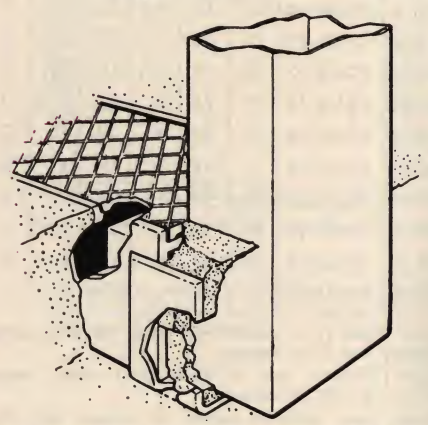
Any special design or special outlet furnished upon specification.

stock lengths	
1' 0"	3' 6"
1' 6"	4' 0"
2' 0"	4' 6"
2' 6"	5' 0"
3' 0"	5' 6"
6' 0"	

available in any lengths specified.

gutter box type GB





typical downspout boot to gutter box installation

Round downspout boots designed to fit flush with building wall. All round outlets fit standard vitrified, concrete or iron soil pipe.

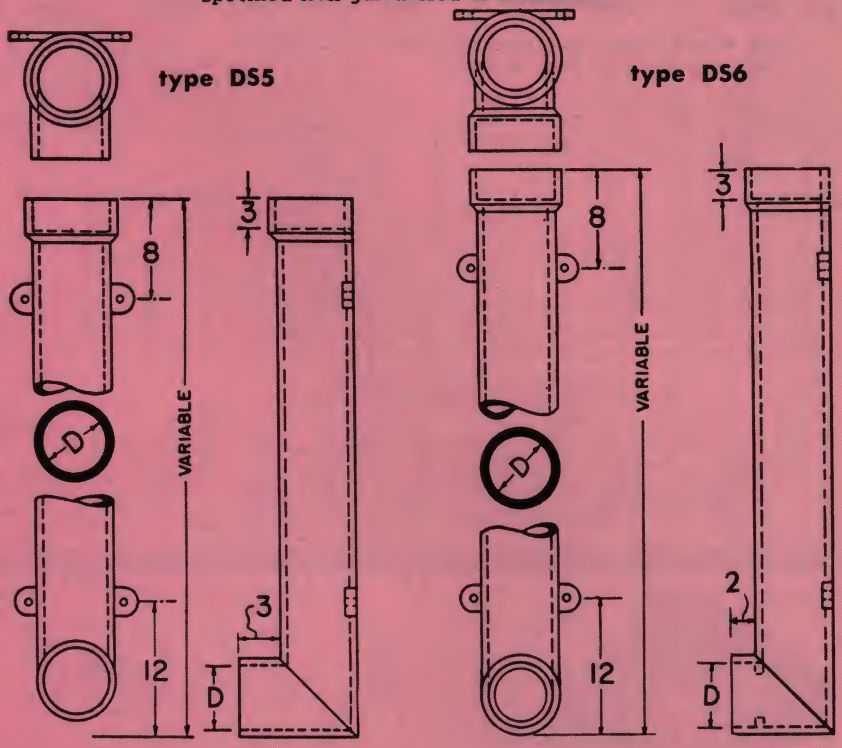
size	offset
D	G
3	1¼
4	1¼
5	1½
6	1½

Any special design furnished upon specification.



typical installation

Furnished in iron primed with zinc chromate unless specified iron galvanized or aluminum.



and cover-grate

Long gutter boxes made by using multiple sections of 4'0" with short section(s).

Gutter box designed for use with DS-1 downspout boot. Box dimensions "D" and "W" should give 1" clearance on top and each side of downspout boot.

For neat appearance, bell is 1" below surface.

Cover and grating fastened with flat head Cadmium plated screws

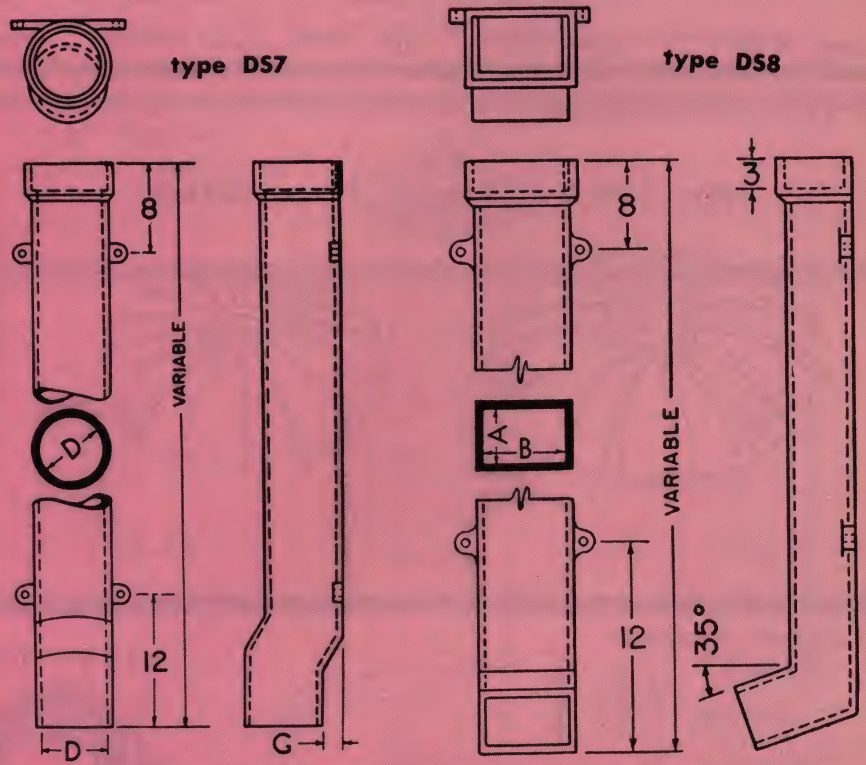
Cover and grating furnished with abrasive safety surface when requested.

gutter box type GB

standard lengths 4'-0"

width W, in.	depth D, in.
4	4
6	4, 6
8	4, 6, 8
10	4, 6, 8, 10
12	4, 6, 8, 10, 12

Gutter box furnished in iron primed with zinc chromate unless specified aluminum.



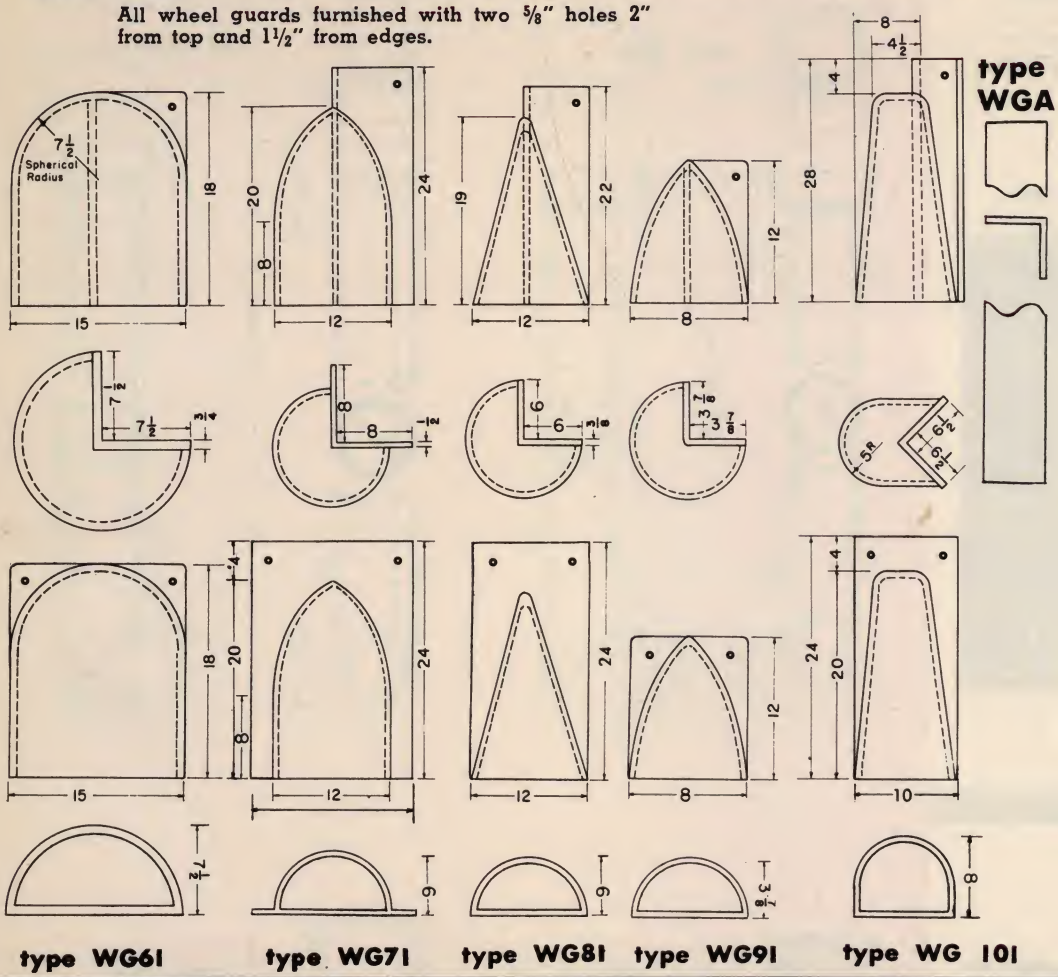
standard construction castings

Furnished in iron primed with zinc chromate, unless specified aluminum sand-blasted, satin-finish or aluminum polished.

wheel guards

type WG6 type WG7 type WG8 type WG9 type WG 10

All wheel guards furnished with two 5/8" holes 2" from top and 1½" from edges.



type WG61 type WG71 type WG81 type WG91 type WG 101

wheel guards

modern designed wheel guards are attractive and are a must. a must to protect masonry when vehicular traffic is involved.

type 6—heavy duty—for trucks —gives protection of 7½" clearance.

type 7—heavy duty—for trucks —gives 6" clearance.

type 8—for cars—6" clearance, slope on guards clears running board.

type 9—for cars—economical wheel guard, can be used on 4" jamb or mullion.

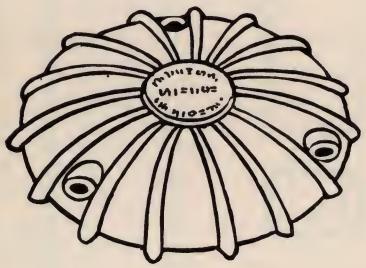
type 10—wide clearance wheel guard with high protection, can be used on narrow jamb or mullion.

WG61 thru WG101 are flat wall wheel guard for their companion corner wheel guards.

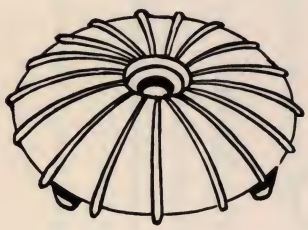
type WGA is matching angle extension furnished separately to any desired height for all types.

traffic lane markers

type TLM-2



type TLM-3



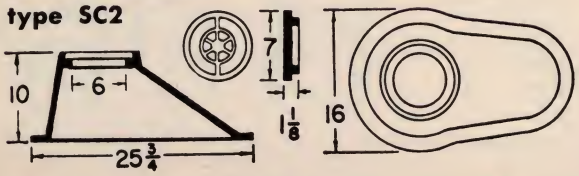
extra heavy duty traffic markers, practically indestructible. furnished with yellow glass-beaded reflection type paint. ribs on marker protect reflection type paint.

type TLM-2 — 13" in diameter, 3½" high. held in place by three ¾" bolts.

type TLM-3 — 10" in diameter, 2½' high. held in place by one ¾' bolt in center. 3 bottom lugs on perimeter optional.

sewer cleanout

type SC2



sewer cleanout type SC2-surface casting for "Y" branch

sewer saddle type SS



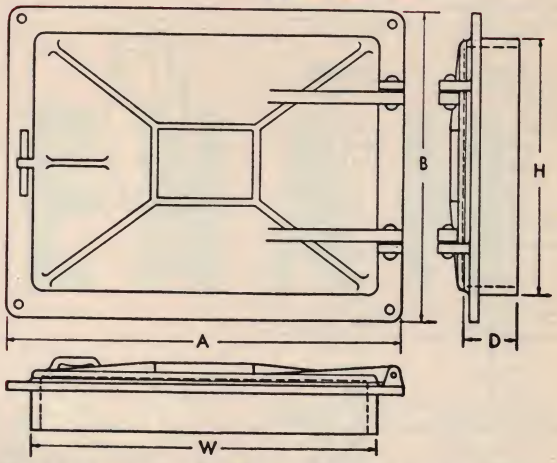
sewer saddle

Type	Size-in.
SS1	6 x 4
SS2	8 x 4
SS3	8 x 6

sizes	dimensions, in.			sizes	dimensions, in.		
W x H	D	A	B	W x H	D	A	B
8 x 8	1⅞	10	10	18 x 16	3⅛	21½	19½
8 x 12	1⅞	10	14	18 x 18	3⅛	21½	21½
12 x 8	1⅞	14	10	18 x 20	3⅛	21½	23½
12 x 12	2¼	14½	14½	18 x 24	3⅛	21½	27½
12 x 14	2¼	14½	16½	20 x 18	3⅛	23½	21½
12 x 16	2¼	14½	18½	20 x 20	3⅛	23½	23½
14 x 12	2¼	16½	14½	20 x 24	3⅛	23½	27½
14 x 14	2¼	16½	16½	24 x 18	3⅛	27½	21½
14 x 16	2¼	16½	18½	24 x 20	3⅛	27½	23½
16 x 12	2¼	18½	14½	24 x 24	3⅛	27½	27½
16 x 14	2¼	18½	16½	24 x 30	3⅛	27½	33½
16 x 16	2¼	18½	18½	24 x 36	3⅛	27½	39½
16 x 18	3⅛	19½	21½	30 x 24	3⅛	33½	27½

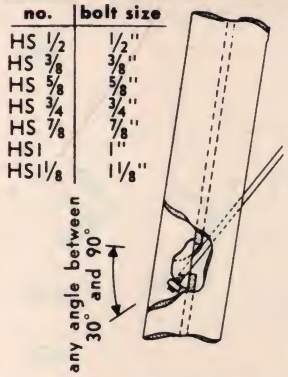
1. Modular and other standard sizes for easy masonry installations.
2. Furnished with double catch and special hinge lugs to be used for either right or left hand door openings.
3. Raised seats on both frames and doors for ground surface fit.
4. Extra heavy construction to withstand abuse.
5. Can furnish with locking hasp when specified.

frame and door, cast iron type CO

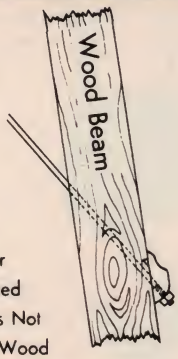


Furnished in iron primed with zinc chromate, unless specified aluminum sand-blasted, satin-finish or aluminum polished.

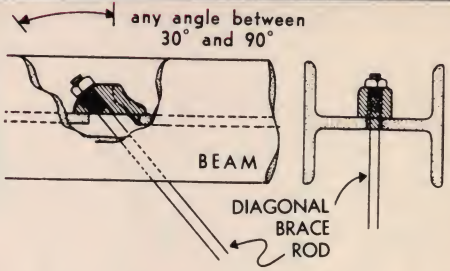
no.	bolt size
HS ½	½"
HS ⅜	⅜"
HS ⅝	⅝"
HS ¾	¾"
HS ⅞	⅞"
HS 1	1"
HS 1⅛	1⅛"



I-Beam, H-Section or Angle tank braces

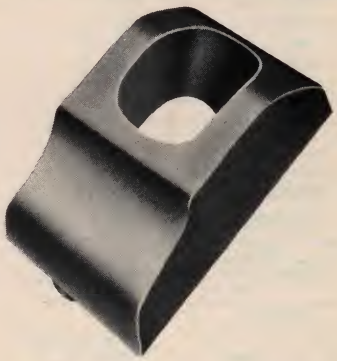


Wood brace or beam



on all diagonal brace rods eliminate

- **turnbuckles**
- **rod bending**
- **threading costs for turnbuckles**



hillside washers

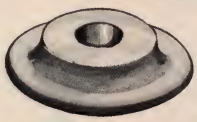
(the bevel washer for any angle between 30° and 90°)

o.g. washers

heavy-duty washers for all requirements

no.	bolt size
OG ½	½"
OG ⅝	⅝"
OG ¾	¾"
OG ⅞	⅞"

no.	bolt size
OG1	1"
OG1⅛	1⅛"
OG1¼	1¼"



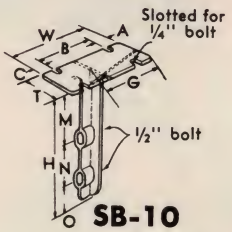
type SB seat brackets

Dimension	type no. SB-10	SB-20	SB-30	SB-40	SB-50	SB-50B
A	2	1½	1½	4½	1	
B	4	3¾	3¾	3⅞	3	
C	2	3¾	3¾	3⅞	3	
D	1½	1½	1¾	1¾	1	
G	4½	4	4		2	
H	12	15	16	15	14	
L						19
M	6	10¼	12¼	3	9⅜	
N	4	4	3	10¾	4	
O	2	¾	¾	1¼	⅜	
S						2½
T	4	3¾	3¾	2½	4	4
U						1¾
W	8	10½	10½	14	8	
Y						7

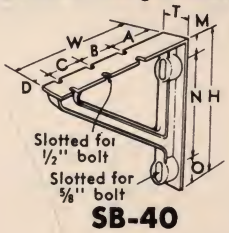
SB-20 and SB-30 have 2° reverse incline

SB-40 has 3° reverse incline.

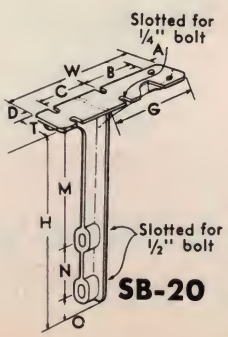
Furnished in iron primed with zinc chromate unless specified iron galvanized or aluminum.



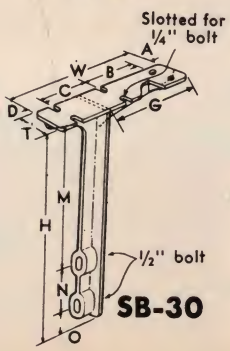
SB-10



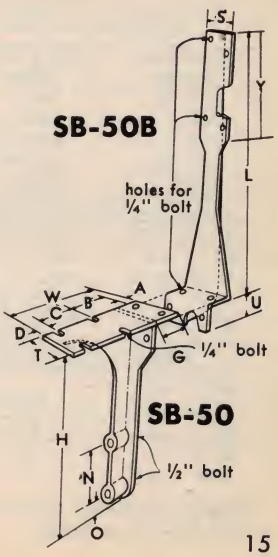
SB-40



SB-20



SB-30



SB-50

hand rail fittings

fittings with "A" prefix furnished in aluminum and bronze
fittings with "B" prefix furnished in iron and galvanized iron

bronze, iron and aluminum hand rail fittings

state finish wanted	
bronze—satin finish bronze—polished aluminum—satin finish aluminum — polished-alloy 214 suitable for alumiliting.	
types nos. N brackets	types nos. N brackets
1¼"-1½" pipe 2" rd. wood	flat seats
AAR-2½	AAF-2½
AAR-3	AAF-3
AR-2½	AF-2½
AR-3	AF-3
elbows	**tees**
AL-1¼	AT-1¼
AL-1½	AT-1½
AL-2	AT-2
crosses	**pipe plugs**
AX-1¼	AP-1¼
AX-1½	AP-1½
AX-2	AP-2
wall returns	**floor flanges**
AW-2½	AB-1¼
AW-3	AB-1½
	AB-2

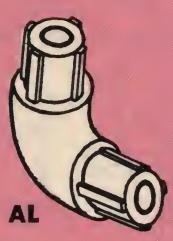
round cover flanges	square cover flanges
ARF- ¾	ASF-1
ARF-1	ASF-1¼
ARF-1¼	ASF-1½
ARF-1½	ASF-1¾
ARF-2	ASF-2
finials	
AF-3	
AF-4	

black or galvanized hand rail fittings

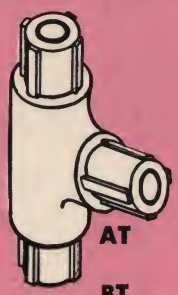
state finish wanted	
types nos. N brackets	types nos. N brackets
1¼"-1½" pipe 2" rd. wood	flat seats
BR-2½	BF-2½
BR-3	BF-3
BBR-2½	BBF-2½
BBR-3	BBF-3
elbows	**tees**
BL-1¼	BT-1¼
BL-1½	BT-1¼
BL-2	BT-2
crosses	**pipe plugs**
BX-1¼	BP-1¼
BX-1½	BP-1½
B-2	BP-2
wall returns	**floor flanges**
BW-2½	BB-1¼
BW-3	BB-1½
	BB-2

round cover flanges	square cover flanges
BRF- ¾	BSF-1
BRF-1	BSF-1¼
BRF-1¼	BSF-1½
BRF-1½	BSF-1¾
BRF-2	BSF-2
newel post caps and drops	
BC-1½ x 1½	BD-3½ x 3½
BC-2 x 2	BD-3 x 3½
BC-2½ x 2½	BD-4 x 4
BC-3 x 3	**sq. post fittings**
BC-3½ x 3½	BPF-1¼
BC-4 x 4	BPF-1½
BC-3 x 4	
BC-3 x 5	**finials**
BC-3 x 6	BF-3
BC-3 x 8	BF-4
BC-4 x 6	
BC-4 x 8	

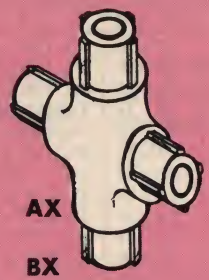
N = pipe or tubing sizes except in bracket N = inches


AL

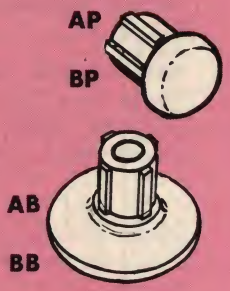
BL


AT

BT


AX

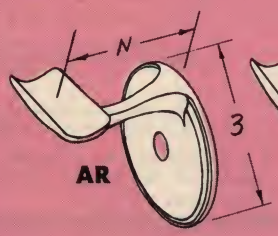
BX

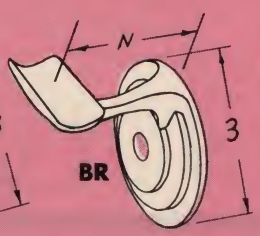

AP

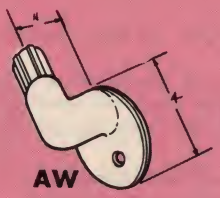
BP

AB

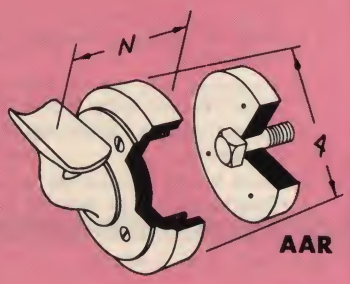
BB


AR

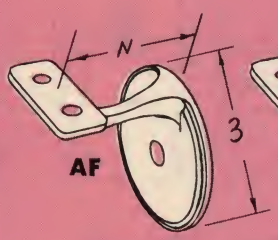

BR

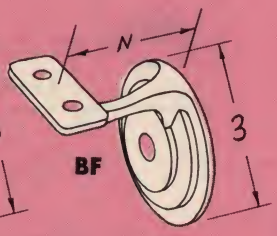

AW

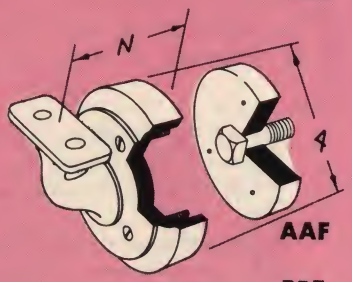
BW


AAR

BBR


AF


BF


AAF

BBF


AF3

BF3


AF4

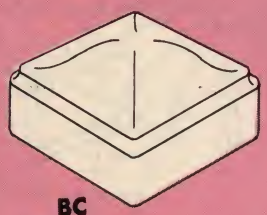
BF4


ASF

BSF

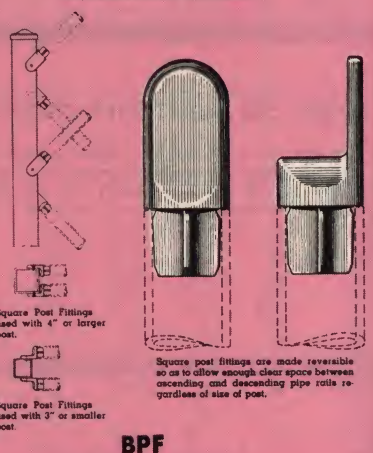

ARF

BRF


BC


BD

SQUARE POST FITTING



BPF

mckinley iron works

p. o. box 790, fort worth, texas

NEENAH

construction CASTINGS



HIGHWAY

MUNICIPAL

BUILDING

INDUSTRIAL

COMMUNICATION

PUBLIC WORKS

AIRPORT

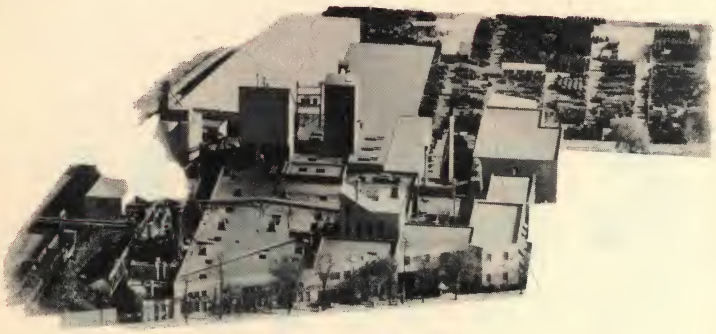
UTILITIES

TRANSPORTATION

NEENAH FOUNDRY COMPANY

neenah, wisconsin

NEENAH CONSTRUCTION CASTINGS



Aerial View of Plant



Production Molding



Shakeout and Casting Conveyor



Chipping and Inspection



Painting



Laboratory Analysis

SINCE 1872 . . . .

Neenah Foundry Company has been an established and recognized leader in the production of high quality standard and specialized castings for the construction industry.

Through eighty-six years it has been our responsibility and purpose to contribute to the expansion and modernization of our cities and highways, our buildings and communications, our transportation and industries, utilities and public works.

Today our modern and mechanized procedures give the assurance of economy with speed and precision. Continuous research and development insure quality values. Cooperation and service are never lacking.

PRODUCTION FACILITIES

Thousands of molds are produced daily on modern machines designed for economical production of castings of all sizes. With skilled molders and experienced supervision we handle many thousands of tons of material and equipment each day—efficiently—accurately—and safely.

Melting through cupola process is refined and completely controlled. Production units are extremely flexible and provide efficient manufacture of Construction Castings in any design or quantity according to engineering preference.

QUALITY CONTROL

Technical Laboratory The best of available raw materials go into Neenah Foundry Construction Castings. All are chemically analyzed in our technical laboratories to control and conform uniform high quality. Our laboratory also conducts constant physical tests on tensile and transverse strength, Brinnell hardness and chill analysis.

Cleaning, Chipping, Inspection Appearance goes hand in hand with quality. After cooling, castings are conveyed to cleaning operations. Latest blast cleaning equipment, grinding and chipping lines are under constant close inspection by qualified craftsmen; the exacting quality control is your assurance of castings to meet specifications in full.

Tests Material used in the manufacture of Neenah Castings conforms to ASTM specifications A-48-56, Class 30 iron minimum and United States Government specification QQ-I-652a for gray iron castings.

MATERIALS

High Strength Gray Iron For most Construction Castings, gray cast iron assures perfect satisfaction. It offers the following important advantages:

Corrosion resistance: Because of its graphite structure, gray cast iron exhibits excellent corrosion resistance.

Rigidity: Engineers value highly this distortion-preventing quality due to lack of ductility causing no distortion until ultimate tensile strength is exceeded.

Low notch sensitivity in gray cast iron means better distribution of stresses and very little reaction under severe fatigue conditions, these dissipated throughout the structure without distortion.

Low coefficient of friction of gray cast iron minimizes wear or abrasion both in contact with exterior influences as well as between component parts of assembly. Cost is low because of unique properties of castability.

Ductile Iron A new material of greater strength, excellent corrosion resistance and thus lower maintenance cost for SPECIAL APPLICATIONS which may not be met with our more economical gray cast iron.

For modern highway and airfield runway drainage castings where shock and load requirements are extreme and corrosion resistance of castings highly important, DUCTILE IRON is an ideal material. It provides the processing advantages of cast iron and the high strength, toughness, ductility and wear resistance of steel.

Neenah Foundry is prepared to supply any construction castings in DUCTILE IRON. Your inquiries are solicited. See back cover for typical range of mechanical properties.

GRADES (Loading capacities)

Most items shown in this catalog are marked for the type of duty for which they will be found suitable. Distinction between grades is based on relative depths of sections and resultant weight.

Heavy duty castings are satisfactory for any roadway traffic.

Medium duty castings are sometimes specified. This grade will be found satisfactory for drive ways, parks, alleys, coal hole installations and many similar applications.

Light duty castings are recommended for sidewalks, terrace, and light roadway traffic.

NOTE

This book contains many popular standards, but represents only a portion of our complete line. If you do not find a casting in this catalog to meet your specifications, write us giving requirements and we will be pleased to offer recommendations and prices. Our complete Catalog "R", Third Edition, will be furnished on your request.

See back cover for suggested specifications.

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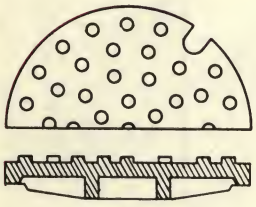
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MANHOLE COVERS, FRAMES

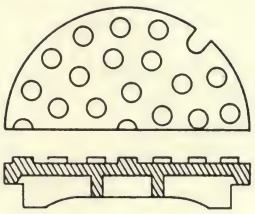
R-1000 to 1509 series, heavy duty, round, for built-up manholes
see p. 5 for sizes and dimensions



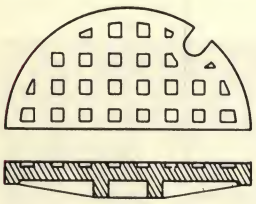
R-1030, Type B Cover



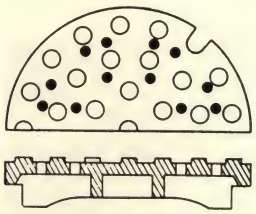
Type A
Knobs 1" dia. x ½" high



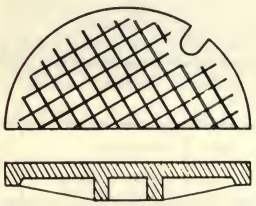
Type D
Knobs 1½" dia. x ⅜" high



Type B
Indented Top Design



Type E
⅜" dia. holes cored thru



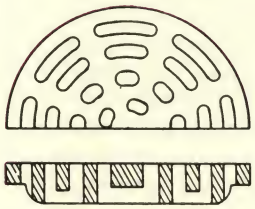
Type C
Checkered Top Design

CATCH BASIN GRATES, FRAMES

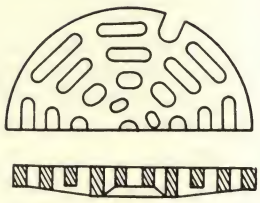
R-2000 to R-2580 series, heavy duty, round, for built-up catch basins
see p. 5 for sizes and dimensions



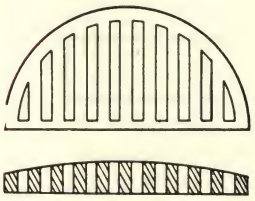
R-2010, Type D Grate



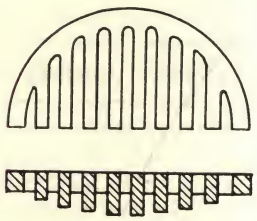
Type A
Standard Flat



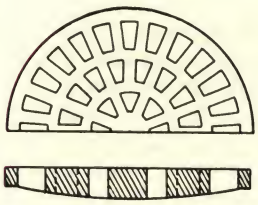
Type D
Standard Flat



Type B
Standard Convex



Type E
Slotted Type



Type C
Standard Radial

Castings feature heavy construction and improved design; are serviceable for any traffic. All castings are asphalt coated.

Specify:

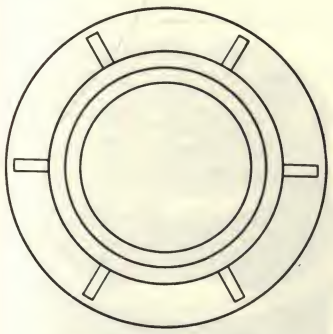
1. Manhole cover or catch basin grate, catalog number and type (A, B, C, D, E).
2. Gray or ductile cast iron.
3. Ground or machined bearing surface design, or noiseless non-rocking design.
4. Locking devices and/or lift handles, if required (see p. 18).
5. Cast iron manhole steps (see p. 19).

Special Requirements—If the castings shown do not meet your specifications, send a sketch with dimensions and we will quote prices.

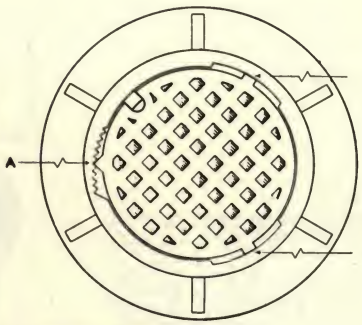
Standard Sizes

Catalog Nos.		Dimensions in Inches							
Manhole Cover Frame	Catch Basin Grate, Frame	A	B	C	D	E	F	Wt. Lb.	Types
R-1010	R-2010	23	1¾	20½	25	36	9	540	A-B-C-D-E
R-1015	R-2015	22¾	1¾	21	24	36	9	540	A-B-C-D-E
R-1020	R-2020	23	1¾	20½	25½	36	9	470	A-B-C-D-E
R-1030	R-2030	23	1¾	20½	26	36	9	450	A-B-C-D-E
R-1031	R-2031	22¾	1¾	20½	26	36	9	450	A-B-C-D-E
R-1040	R-2040	23	1½	20½	25½	36	9	400	A-B-C-D-E
R-1050	R-2050	23	1½	20½	25½	36	9	360	A-B-C-D-E
R-1060	R-2060	22	1½	20	24½	36	6½	350	A-B-C-D-E
R-1070	R-2070	23	1½	20½	25½	36	9	330	A-B-C-D-E
R-1077A	R-2077A	22¾	1¾	21	24½	36	7	325	A-B-C-D-E
R-1077B	R-2077B	22¾	1¾	21	24½	36	7	360	A-B-C-D-E
R-1077C	R-2077C	22¾	1¾	21	24½	36	7	400	A-B-C-D-E
R-1080	R-2080	22½	1¾	20½	24½	36	6	320	A-B-C-D-E
R-1090	R-2090	22	1½	20	24½	35	9	300	A-B-C-D-E
R-1100	R-2100	22	1½	20	24	33	8	275	A-B-C-D-E
R-1110	R-2110	22	1½	20	23½	32	6	265	A-B-C-D-E
R-1112	R-2112	22	1½	20½	24	28¼	6	260	A-B-C-D-E
R-1120	R-2120	22	1½	20½	23	28	4	200	A-B-C-D-E

Note: Clear opening is C.

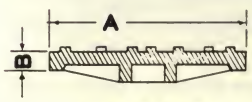


Ground or Machined Bearing Surface Design

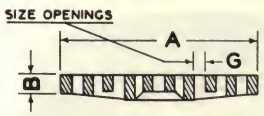


Noiseless, Non-rocking Design

Side bearing lug A is pointed and adjustable to its proper "V" slot due to graduation of teeth in the rack, thereby preventing all movement or rock of lid in frame.



Manhole Cover

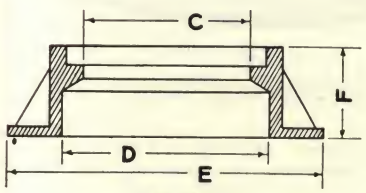


Catch Basin Grate



Section A Enlarged

Showing the pointed lug and adjusting rack. Note graduation of teeth, each 1/32" on full size castings.



Frame

Special Sizes

Catalog No.		Dimensions in Inches						Wt. Lb.	Types
Manhole Cover Frame	Catch Basin Grate, Frame	A	B	C	D	E	F		
R-1230	R-2230	50½	2	48	52	62	10	1775	Dbl. Lid
R-1240	R-2240	44½	1¾	42	46	56	10	1225	Dbl. Lid
R-1250	R-2250	38	1½	36	40	50	10	850	B-C
R-1251	R-2251	36	1½	34	36	45	8½	720	Special
R-1254	R-2254	32	1½	30½	30	46	10	800	B-C
R-1255	R-2255	32	1⅜	30	41	49	10	775	Special
R-1260	R-2260	32½	1½	30	36	46	10	725	B-C
R-1270	R-2270	32½	1½	30	36	46	7	550	B-C
R-1275	R-2275	32	1⅜	30	37	49	5⅝	640	Special
R-1281	R-2281	29¾	1⅜	28	30	40½	8	540	Special
R-1286	R-2286	28¾	1¾	27	30	42	12	950	Special
R-1290	R-2290	29	1⅜	27	38	46	10	630	Special
R-1290-A	R-2290-A	29	1⅜	27	34	46	5⅝	550	Special
R-1290-B	R-2290-B	29	1⅜	27	29½	37½	7	550	Special
R-1291	R-2291	28½	1½	26	31	42	9	650	Special
R-1293	R-2293	28	1	26	28	34	4	350	C
R-1296	R-2296	25¾	⅞	24⅛	26½	35½	7	400	Special
R-1297	R-2297	25¾	⅞	24⅛	26½	35½	8	440	Special
R-1298	R-2298	25¾	⅞	24⅛	26½	35½	9	480	Special
R-1299	R-2299	25¾	⅞	24⅛	26½	35½	10	500	Special
R-1300	R-2300	26	1⅜	24	35	43	10	550	B-C
R-1370	R-2370	26	1½	24	28½	39	7	400	A-C-D-E
R-1390	R-2390	26	1	24	24	30½	7	350	Special
R-1392	R-2392	26	1	24	24	36	7½	400	Special
R-1394	R-2394	26¼	1	24	27	34	6	330	C
R-1398	R-2398	26	⅞	23⅞	23⅞	32	8	400	Special
R-1401	R-2401	26	1⅛	23½	26¼	35¾	7	450	Special
R-1402-A	R-2402	24¾	1	23	26	35	10¾	390	C
R-1404-A	R-2404	25½	2	23	27½	41	10½	575	Special
R-1405	R-2405	25	1½	23	27	38	9	400	A-C-D-E
R-1408-A	R-2408	23⅞	1	23	26½	38	8½	350	Special
R-1410	R-2410	24	1½	23	25½	35	7½	350	Special
R-1411-A	R-2411-A	25⅜	1¼	23	25½	41½	7	550	Special
R-1412-A	R-2412-A	23¾	1	23	24½	31¼	4⅝	250	C
R-1412-B	R-2412-B	23¾	1	22	25½	33	5	270	C
R-1414	R-2414	23⅛	2⅛	22	24	33½	9	420	Special
R-1415	R-2415	24	2	22	25	35	7	340	A-C-D-E
R-1417	R-2417	23¾	1¾	22	23¾	34	7½	410	Special
R-1418	R-2418	23¾	1	22	24	38	10½	485	Special
R-1418-A	R-2418-A	24	1½	22	26	36	9	375	B
R-1419	R-2419	25½	1¼	22	22	34	9	450	C
R-1420	R-2420	24	1⅛	22	24	36	9½	375	D
R-1420-A	R-2420-A	24½	2	22	22	30	7	425	Special
R-1420-B	R-2420-B	22⅛	1⅛	22	23	29	8	325	C
R-1421-A	R-2421-A	23¼	1¼	22	22	34	10	420	B
R-1422	R-2422	25½	1¼	22	25½	37½	9½	575	Special
R-1422-A	R-2422-A	23¾	1	21¾	27	37	10½	425	B
R-1422-B	R-2422-B	23⅞	1½	21½	24½	35½	7¼	400	Special
R-1422-C	R-2422-C	23¾	1	21½	23¾	38	7	500	Special
R-1423	R-2423	23¾	1	21½	23¾	38	9	500	C
R-1424-A	R-2424-A	22½	2⅝	21¼	21¼	34¼	6¼	430	D
R-1429	R-2429	22¾	1¾	21	23	31⅛	14½	420	A-B-C-D-E
R-1430	R-2430	23⅞	1¾	21	24½	38	9	475	A-B-C-D-E
R-1431	R-2431	23¾	1½	21	24	37½	12	485	Special.
R-1432	R-2432	23	1¾	21	25	36	9	460	B-C-D-E
R-1433-A	R-2433-A	23¾	3	21	24½	31¾	7	500	Special
R-1435	R-2435	22¼	1	21	22½	30	9¾	350	D
R-1436	R-2436	23	1⅜	21	26	35	8¾	400	A-B-C-D-E
R-1437	R-2437	22¾	1¾	21	22½	32½	4	400	A-B-C-D-E
R-1437-A	R-2437-A	22¾	1¾	21	24	28	4½	375	A-B-C-D-E
R-1437-B	R-2437-B	22¼	1	21	22½	28½	4¾	270	D
R-1438	R-2438	22¾	1¾	21	23	25	6	365	A-B-C-D-E
R-1453	R-2453	23¾	1½	20¾	25	33¼	7	500	Special
R-1461	R-2461	24	1¼	20½	20½	36	7½	500	Special
R-1461-A	R-2461-A	22	1½	20½	24	30	6	210	A-B-C-D-E
R-1462	R-2462	22	2	20½	24½	36	7½	540	D
R-1463	R-2463	23	1½	20½	25½	36	9	330	A-B-C-D-E
R-1465	R-2465	22¾	1	20¼	23	36½	9½	485	Special
R-1466	R-2466	23	1⅜	20¼	20¼	32¼	7	420	C
R-1466-1	R-2466-1	23	1⅜	20¼	20¼	32¼	7	365	C
R-1466-2	R-2466-2	23	1⅜	20¼	20¼	32¼	7	335	C
R-1466-A	R-2466-A	22¼	1½	20	22¾	32	10¾	375	Special
R-1467	R-2467	22¾	1½	20	26¼	38	10	450	Special
R-1471	R-2471	22¾	1½	20	26¼	38	10	550	Special
R-1471-A	R-2471-A	21¾	1⅜	20	22¼	30	9¾	340	Special
R-1471-B	R-2471-B	22¾	1½	20	24	34	9½	375	B
R-1472	R-2472	21¾	1	20	20	36	8½	400	Special
R-1475	R-2475	22	1½	20	24½	36	6½	350	A-B-C-D-E
R-1481	R-2481	22	1	19¾	23½	32¼	8¾	340	Special
R-1484	R-2484	21½	1¼	19½	19½	36	7½	425	C
R-1488-A	R-2488-A	21	1½	19	22¼	34	9½	400	B
R-1488-B	R-2488-B	19	1¾	18	20¾	30	7¾	290	Special
R-1494	R-2494	19¾	1½	17¾	21½	29	5½	225	C
R-1496	R-2496	18	1	17	19	25	4½	125	C
R-1497	R-2497	18	1¼	16½	20½	30	8	230	C
R-1498	R-2498	16	1¼	15	15	23	4¾	110	C
R-1503	R-2503	16	1¼	15	15¾	22	3	75	C
R-1509	R-2509	12	1⅛	11	12¾	19	4	90	C

MANHOLE COVERS, FRAMES

R-1640 series, heavy duty, round, for built-up manholes

U. S. Government standard designs. Standard for underground electric or telephone construction. Frame ribs have hook holes for easy handling—also for anchorage.

Specify:

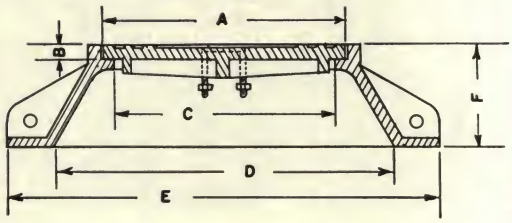
1. Catalog number.
2. Gray or ductile cast iron.
3. Machined bearing surface (illustrated).
4. Two drop handles (see p. 18) or regular pickhole.

Also Specify if Needed: Locking device (see p. 18); cast iron manhole steps (see p. 19); sump frame and grate R-1646 (see p. 12).



R-1640 Manhole Cover and Frame

Catalog No.	Dimensions in Inches A	B	C	D	E	F	Wt. Lb.
R-1640-A	26	1⅜	24	35	43	10	550
R-1640-B	29	1⅜	27	38	46	10	630
R-1640-B1	29	1⅜	27	34	46	5⅝	550
R-1640-C	32	1⅜	30	41	49	10	750
R-1640-C1	32	1⅜	30	37	49	5⅝	640
R-1640-D	38	1½	36	40	50	10	875



MANHOLE COVERS, CATCH BASIN GRATES,† FLANGES AND FRAMES

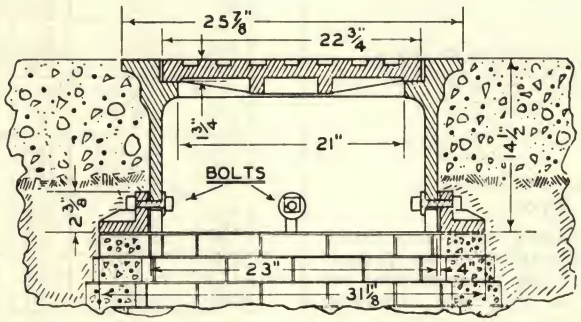
R-1672, heavy duty, round, for built-up manholes

Frame is standard type 5. Top flange of frame prevents settlement below pavement grade. Frame is of greater length than maximum thickness of slab, and telescopes within base. Thus frame and pavement are free of support from the rigid manhole wall.

Specify:

1. Catalog number.
2 If manhole cover, whether indented type B (illustrated) or knobbed type D. (see p. 4).
3. If catch basin grate, specify type (see p. 4).
4. Gray or ductile cast iron.
5. Machined bearing surface design (illustrated) or noiseless non-rocking design.

Also Specify if Needed: Locking device or lift handles (see p. 18); cast iron manhole steps (p. 19).



Furnished with one or three slot design as specified.



R-1672 Manhole Cover, Flange and Frame

Frame and flange	270 pounds
Lid	150 pounds
Total weight	420 pounds

MANHOLE COVERS, FRAMES

R-1712, heavy duty, round, for built-up manholes

Frame is standard type 1. Extra heavy construction. Total weight —540 pounds.

Specify:

1. Catalog number.
2. Machined bearing surface (illustrated).
3. Gray or ductile cast iron.

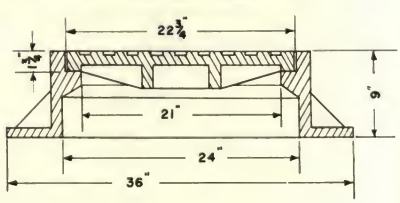
Also Specify if Needed: Locking device or lift handles (see p. 18); cast iron manhole steps (p. 19).

† Not illustrated.



R-1712 Manhole Cover and Frame

Catalog No.	Wt. Lb.
R-1712	540
R-1712-A	470
R-1712-B	450



MANHOLE COVERS, CATCH BASIN GRATES,† FRAMES

R-1740 series, heavy duty, round, for built-up manholes

These are large size castings.

Specify:
1. Catalog number.
2. Manhole cover or catch basin grate.
3. Gray or ductile cast iron.
4. Machined bearing surface (illustrated).

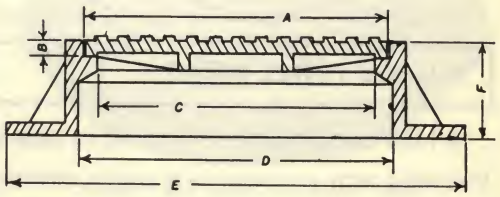
Also Specify if Needed: Concealed type pickhole (see p. 15); locking device (see p. 18); cast iron manhole steps (see p. 19).



R-1740 Manhole Cover and Frame

Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	D	E	F	
R-1740-A	32½	1½	30	36	46	10	725
R-1740-B	32	1½	30	36	46	7	550
R-1740-B1	32½	1½	30½	36	46	10	800
R-1740-D	38	1½	36	40	50	10	850
R-1740-E*	44½	1¾	42	46	56	10	1225
R-1740-F*	50½	2	48	51	62	10	1775

* Furnished with 22" center cover for access.



MANHOLE COVERS, CATCH BASIN GRATES,† FRAMES

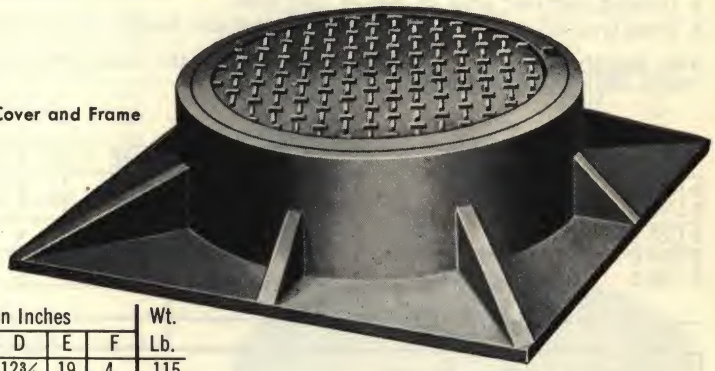
R-1795 series, heavy duty, round, with square flange, for built-up manholes

Specify:
1. Catalog number.
2. Manhole cover or catch basin grate.
3. Gray or ductile cast iron.

Also Specify if Needed: Holes in flange for anchor bolts; locking device or lift handles (see p. 18); cast iron manhole steps (p. 19).

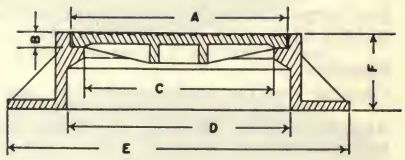
Square flanges can be furnished on any other standard manhole covers.

R-1795 Manhole Cover and Frame



Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	D	E	F	
R-1795-A	12	1⅛	11	12¾	19	4	115
R-1795-B	16	1¼	15	15	23	5	135
R-1795-C	19¾	1½	17¾	21	29	5½	275
R-1795-D	22	1½	20	24	32	6	300
R-1795-E	22	1½	20	24	33	8	325
R-1795-F	24	1½	22	25½	35	7½	475
R-1795-G	25½	1¼	22	25½	37	9½	750
R-1795-H	26	1½	24	28½	39	7	475
R-1795-J	28½	1½	26	31	42	9	820
R-1795-K	32½	1½	30	36	46	7	650
R-1795-L	32½	1½	30	36	46	10	850
R-1795-M	38	1½	36	40	50	10	925
R-1795-N*	44½	1¾	42	46	56	10	1450
R-1795-O*	50½	2	48	52	62	10	1950

* With 22" center cover for access.

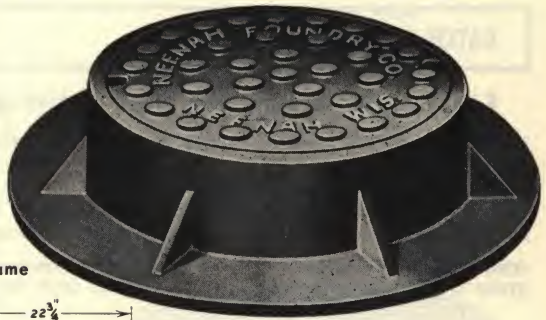


MANHOLE COVERS, FRAMES

R-1772 series, heavy duty, round, for built-up manholes

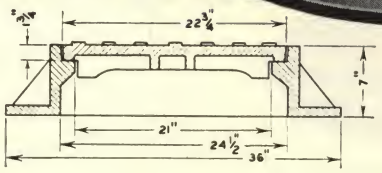
Specify:
1. Catalog number.
2. Gray or ductile cast iron.
3. Machined bearing surface (illustrated) or noiseless non-rocking design.

Also Specify if Needed: Locking device or lift handles (see p. 18): cast iron manhole steps (p. 19).



R-1772 Manhole Cover and Frame

Catalog No.	Wt. Lb.
R-1772-A	325
R-1772-B	360
R-1772-C	400



† Not illustrated

MANHOLE COVERS, CATCH BASIN GRATES†, FRAMES

R-1690 medium duty, R-1690-A heavy duty, round, fits bell of 24" pipe

For cemetery or park. Similar casting can be supplied to fit 18, 30 and 36" pipe bells. Write for data sheet. Total weight of R-1690 is 150 pounds. Total weight of R-1690-A is 200 pounds.

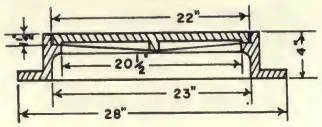
Specify:

1. Catalog number and if manhole cover or catch basin grate.
2. Gray or ductile cast iron.
3. Ground or machined bearing surface or noiseless non-rocking design.

Also Specify if Needed: Locking device or lift handles (see p. 18); cast iron manhole steps (see p. 19).



R-1690 Manhole Cover and Frame



MANHOLE COVERS, FRAMES

R-1766 series, medium duty, round, for built-up manholes or slab

Furnished with standard cover unless waterproof one specified.

Specify:

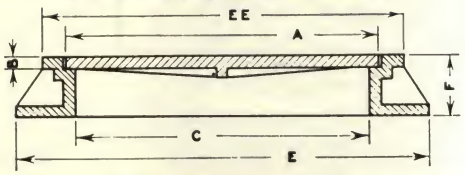
1. Catalog number; gray or ductile cast iron.
2. Ring type lift handle (illustrated) or alternate handle (see p. 18).

Also Specify if Needed: Locking device (see p. 18); cast iron manhole steps (see p. 19); waterproof cover.

Catalog No	Dimensions in Inches						Wt. Lb.
	A	B	C	E	EE	F	
R-1766-A	20½	⅝	18	29	25½	4	160
R-1766-B	24	⅝	22½	33	28	4	210
R-1766-B1	28	¾	24	30¼	29½	4	250
R-1766-C	33½	¾	32	43	37½	4	400
R-1766-D	37½	¾	36	47	42	4	575



R-1766 with Ring Type Lift Handle



MANHOLE COVERS, FRAMES

R-1773 medium duty, R-1773-A heavy duty, round, for built-up manholes

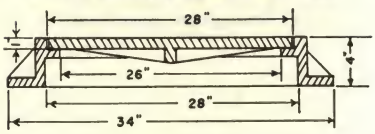
Has large diameter clear opening. Total weight of R-1773 is 300 pounds. Total weight of R-1773-A is 350 pounds.

Specify:
Catalog number; gray or ductile cast iron.

Also Specify if Needed: Locking device or lift handles (see p. 18); cast iron manhole steps (see p. 19).



R-1773 Manhole Cover and Frame



CATCH BASIN GRATES, FRAMES

R-2535, medium or heavy duty, round, for built-up manholes

Total weight: 260 pounds. Grate type may be varied for heavy duty.

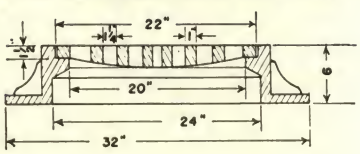
Specify:

1. Catalog number; medium or heavy duty; gray or ductile cast iron.
2. Ground or machined bearing surface or noiseless non-rocking design.

Also Specify if Needed: 4" or 9" height (otherwise 6" height furnished); other grate type for heavy duty (see p. 4); cast iron manhole steps (see p. 19).



R-2535 Catch Basin Grate and Frame



† Not illustrated.

MANHOLE COVERS, CATCH BASIN GRATES, FRAMES

R-6013 to R-6099, heavy duty, round, for slab

Items are standard, designed to resist impact, abrasion and corrosion, insuring long and satisfactory access openings where used. Asphalt coated. For special industrial uses, manhole castings can be furnished non-magnetic or sparkproof. Write for data.

Specify:

1. Catalog number.
2. Catch basin grate if desired (otherwise manhole cover is furnished).
3. Gray or ductile cast iron.

Also Specify if Needed: Locking device or lift handles (see p. 18); covers with special lettering; cast iron manhole steps (see p. 19); non-magnetic or sparkproof.

Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	DD	E	F	
R-6013	6½	1¼	5½	6¾	10	2½	20
R-6014	9	1¼	8	9	13	3	35
R-6016	14	1¼	12	13	18	3	75
R-6017	17	1¼	15	16	21	4	100
R-6018	21	2½	18	20	27½	5	300
R-6019	22¾	1¾	20	23	25	4½	280
R-6021	23	1¼	20	22	29½	4	300
R-6030	23	1¾	21	22¾	30	4	250
R-6033	23	1¾	21	22¾	30	4	340
R-6035	23	1¾	21	22¾	30	8	350
R-6041	24	1⅝	22	25¼	30	4	290
R-6050	27	1¼	24	25½	33½	4	300
R-6060	26	1⅝	24	27	36	5¼	360
R-6065	26	1¾	24	26	30	6	400
R-6066	27	2½	24	26	33½	5	455
R-6067	27	2½	24	26	33½	5	500
R-6074	29	1¼	26½	27½	35	3½	240
R-6075	29	1¾	27	29	35	6	500
R-6078	32¼	2	30	31½	39½	6	575
R-6095	38½	1½	36	38	49	4½	810
R-6097	44	1	42	43½	48	6	750
R-6099	50	1	48	49½	54	6	975

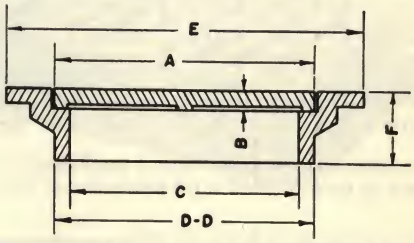
Special variations in dimension "F" arranged on request.



R-6066 Manhole Cover and Frame



R-6050 Catch Basin Grate and Frame



MANHOLE COVERS, CATCH BASIN GRATES, FRAMES

R-6001 to R-6099-A, light duty, round, for slab

Designed as coal hole, cistern, well, pump and inspection opening for off the street traffic.

Specify:

1. Catalog number.
2. Catch basin grate if desired (otherwise manhole cover furnished).
3. Gray or ductile cast iron.

Also Specify if Needed: Locking device or lift handles (see p. 18); covers with special lettering; cast iron manhole steps (see p. 19).

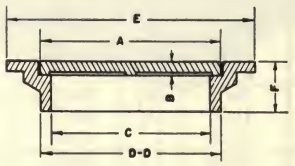
Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	DD	E	F	
R-6001	6	1	5	6	10	3½	25
R-6003	9	1	8	9	12	2½	35
R-6005	12¾	1	11	12	14¾	2½	45
R-6006	13	¾	11¾	14	17	2½	40
R-6007	14	¾	12	15	20	2½	60
R-6008	16	¾	15	16	20¼	2½	75
R-6009	18	⅜	16½	18¼	21¼	¾	40
R-6010	18	½	16½	20	22½	4	90
R-6011	18	½	17	18	22½	2½	70
R-6012	20½	⅝	18	21	24	2½	100
R-6020	21½	1	20	23½	27	4	140
R-6034	24	½	22	23½	26½	3	150
R-6040	24	¾	22	23¼	30	3½	155
R-6044	25	1	22	23¼	28	6	235
R-6044-A	25½	½	24	25	30½	4	175
R-6045	26	¾	24	25	32	4	210
R-6070	27	¾	25	26¼	31	3½	210
R-6077	32	¾	30	31½	36½	6	350
R-6080	33½	¾	32	34¾	37	4	275
R-6090	37½	¾	36	38½	42½	4½	450
R-6097-A	44	1	42	43½	48	6	550
R-6099-A	50	1	48	49½	54	6	800



R-6020 Manhole Cover and Frame



R-6040 Grate and Frame

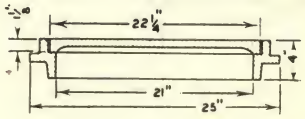


MANHOLE COVERS, FRAMES

R-1737, light duty, round, for slab or built-up manhole

Total weight—115 pounds.

Specify: Catalog number and if gray or ductile cast iron.





R-1737 Manhole Cover and Frame

MANHOLE COVERS, CATCH BASIN GRATES, FRAMES

R-1800 to R-1844 series, heavy duty, square, for built-up manholes

Specify:

1. Catalog number and if manhole cover or catch basin grate.
2. Gray or ductile cast iron.
3. Round base flange if desired (otherwise square flange furnished).

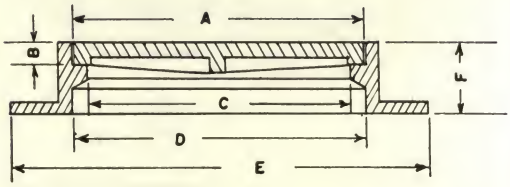
Also Specify if Needed: Locking device or lift handles (see p. 18); cast iron manhole steps (see p. 19).

Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	D	E	F	
R-1800*	20x20	1¾	18x18	22½x22½	31x31	5	310
R-1802*	20x20	1¾	18x18	22½x22½	31x31	10	420
R-1804*	23¾x23¾	1½	22x22	24x24	28x28	4	330
R-1810*	24x24	2	22x22	26x26	35x35	6	390
R-1816	24x24	2	22x22	26x26	35x35	6	490
R-1818	26x26	1¾	24x24	24x24	30x30	9½	390
R-1822	27x27	1	25x25	27½x27½	36x36	6	475
R-1828	32x32	1½	30x30	30x30	36x36	6	575
R-1832	32x32	1¾	30x30	32½x32½	42x42	6	800
R-1840**	36x36	1¾	34x34	36x36	45x45	7	675
R-1844**	50x50	1¾	48x48	52x52	62x62	8	1300

* Furnished with round base flange if specified.
** Cover or grate furnished in two pieces.







MANHOLE COVERS, CATCH BASIN GRATES†, FRAMES

R-1801 to R-1855 series, heavy duty, rectangular, for built-up manholes

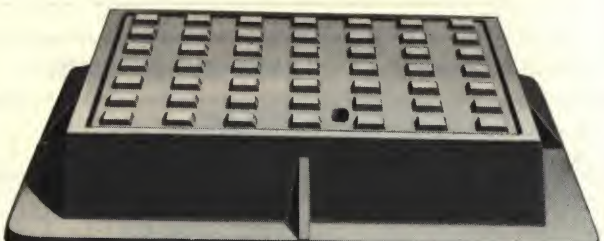
Manhole covers may be used for utility or equipment covers.

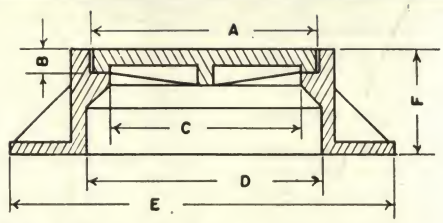
Specify:

As for series R-1800 above, except round base flange not available.

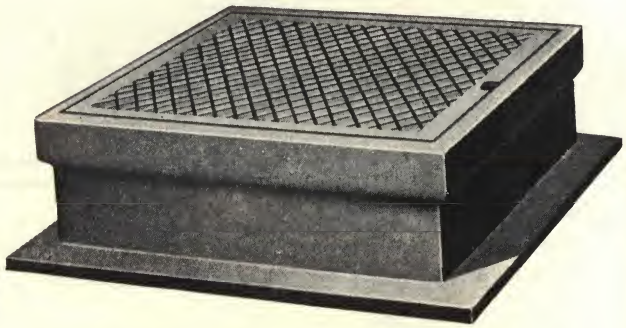
Catalog No.	Dimensions in Inches						Frame Type	Wt. Lb.
	A	B	C	D	E	F		
R-1801	12x15	1¼	10x13	11½x14½	19x22	4	A	175
R-1803	14½x21½	2	13x20	15x22	23x30	5½	A	275
R-1805	15x20	2	12½x17½	16½x21½	25½x30½	9	A	330
R-1809*	16x49	1¼	14x47	14x47	24x57	8	B	850
R-1813	17x22	1½	15x20	17x22	26x36	7	A	475
R-1815	18x30	2	16x28	18x30	26x38	8½	A	575
R-1817	18x36	2	16x35	19x37	28x46	7	A	470
R-1820*	20x42	1¾	18x40	21x43	30x49	9	A	750
R-1823	21¼x34	3	19½x32¼	22¼x35	31x43	6	A	540
R-1825*	23x58	1	21x56	24x59	35x70	8½	A	1000
R-1827	24x25	1	22x23	22x23	32x33	9	B	525
R-1830	24x35	2	22x33	25x36	35x46	6	A	510
R-1833	24x36	1¾	22x34	24x36	38x50	9	A	840
R-1835	24x30	1	22½x28½	24x30	30x36	4	A	310
R-1837	27x30	1¼	25x28	25x28	35x38	8	B	715
R-1839	28x32	1½	26x30	29x33	38x42	8½	A	840
R-1841	33x39	1¼	30x36	31x37	36x42	6	B	625
R-1848*	34x66	2	32x64	34x66½	42x74	6	A	1100
R-1849*	36x60	2	34x58	34x58	48x72	6	B	1100
R-1851**	38x74	2	36x72	38½x74½	44x81	7	A	1300
R-1855*	42x46	1¾	40x44	40x44	46x52	4	A	1100

* Cover in two pieces. ** Cover in three pieces.

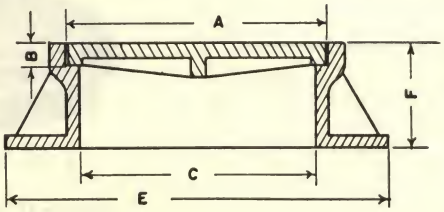




Type A Frame with Knobbed Manhole Cover



Type B Frame with Type C Checkered Manhole Cover



† Not illustrated.

MANHOLE COVERS, CATCH BASIN GRATES, FRAMES

R-1878 series, heavy duty, R-1879 series, light duty, square or rectangular, for built-up manholes or (when inverted) slab

All castings asphalt coated.

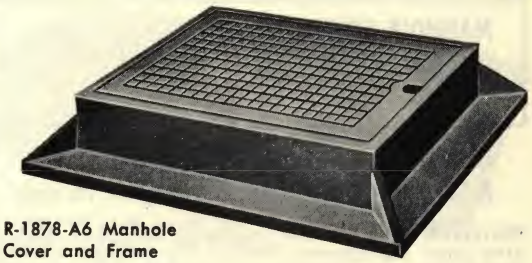
Specify:

1. Catalog number and if manhole cover or catch basin grate.
2. For heavy or light duty, gray or ductile cast iron.
3. If frames will be used with flange at top for slab manhole.

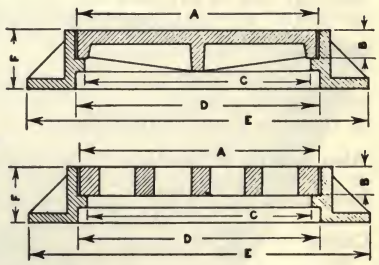
Also Specify if Needed: Locking device or lift handles (see p. 18); cast iron manhole steps (see p. 19).

Dimensions in Inches						Heavy Duty		Light Duty	
A	B	C	D	E	F	Catalog No.	Wt. Lb.	Catalog No.	Wt. Lb.
Square									
13¾x13¾	1½	12x12	14x14	18x18	4	R-1878-A1	130	R-1879-A1	105
18x18	1½	16x16	18¼x18¼	22x22	4	R-1878-A2	200	R-1879-A2	195
20x20	1½	18x18	20¼x20¼	24x24	4	R-1878-A3	210	R-1879-A3	200
21¾x21¾	1½	20x20	22x22	26x26	4	R-1878-A4	225	R-1879-A4	210
23¾x23¾	1½	22x22	24x24	28x28	4	R-1878-A5	300	R-1879-A5	225
25¾x25¾	1½	24x24	26x26	30x30	4	R-1878-A6	350	R-1879-A6	250
27¾x27¾	1½	26x26	28x28	32x32	4	R-1878-A7	375	R-1879-A7	295
29½x29½	1½	28x28	29¾x29¾	34x34	4	R-1878-A8	400	R-1879-A8	325
31¾x31¾	1½	30x30	32x32	36x36	4	R-1878-A9	410	R-1879-A9	350
37½x37½	1½	36x36	37¾x37¾	42x42	4	R-1878-A10*	515	R-1879-A10*	425
Rectangular									
14x20	1½	12x18	14¼x20¼	18x24	4	R-1878-B1	160	R-1879-B1	165
13½x25½	1½	12x24	13¾x25¾	18x30	4	R-1878-B2	240	R-1879-B2	175
19½x25½	1½	18x24	19¾x25¾	24x30	4	R-1878-B3	250	R-1879-B3	250
19⅜x31⅜	1½	18x30	20x32	24x36	4	R-1878-B4	300	R-1879-B4	275
19¾x37¾	1½	18x36	20x38	24x42	4	R-1878-B5	375	R-1879-B5	300
25½x31½	1½	24x30	25¾x31¾	30x36	4	R-1878-B6	400	R-1879-B6	300
25¾x37¾	1½	24x36	26x38	30x42	4	R-1878-B7	410	R-1879-B7	340
25¾x49¾	1½	24x48	26x50	30x54	4	R-1878-B8*	510	R-1879-B8*	370
31¾x37¾	1½	30x36	32x38	36x42	4	R-1878-B9*	525	R-1879-B9*	420
31½x49½	1½	30x48	31¾x49¾	36x54	4	R-1878-B10*	650	R-1879-B10*	520

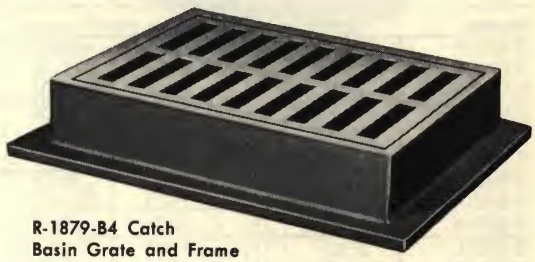
* Cover in two pieces.



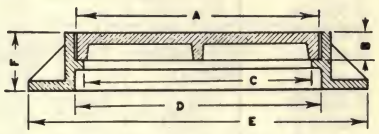
R-1878-A6 Manhole Cover and Frame
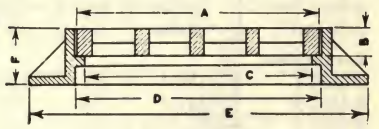


Heavy Duty R-1878 Sections



R-1879-B4 Catch Basin Grate and Frame



Light Duty R-1879 Sections



MANHOLE COVERS, FRAMES

R-1880 series, medium or heavy duty, square or rectangular, for built-up manholes or slab

Government standard castings for cleanouts, electric manholes, transformer pits, etc.

Specify:

1. Catalog number and if gray or ductile cast iron.
2. If heavy duty (otherwise medium furnished).

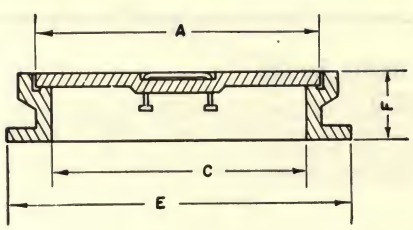
Also Specify if Needed: Special lettering on covers; locking device or lift handles (see p. 18); cast iron manhole steps (see p. 19).

Catalog No.	Dimensions in Inches				Wt. Lb.
	A	C	E	F	
R-1880-A1	12½x18	10x16	19x25	4	100
R-1880-A2	16x24	14x22	23x31	4	260
R-1880-A3	16x49	14x47	24x59	8	900
R-1880-A4	18x30	16x28	25x37	4	235
R-1880-A5	21x33	18x30	27x39	3½	230
R-1880-A6	22½x30	21x29	27x35	4¾	275
R-1880-A7	24x36	22x34	31x43	4	335
R-1880-A8	25x25	22x22	34x34	6	500
R-1880-A9	24x25	22x23	32x33	9	475
R-1880-C	24½x42½	22x40	31x49	4	375
R-1880-C1	26x26	24x24	28x28	9½	390
R-1880-D	27x30	25x28	35x38	8	715
R-1880-E	33x39	30x36	36x42	6	600
R-1880-F*	36x60	34x58	48x72	6	1130

* Cover in two pieces.



R-1880 Manhole Cover and Frame



MANHOLE COVERS, CATCH BASIN GRATES, FRAMES

R-6662 series, heavy duty, square, for slab
R-6663 series, heavy duty, rectangular, for slab

Standard items shown represent accepted designs which will give most satisfactory service for purpose intended. Manhole castings can be supplied non-magnetic or sparkproof for special industrial applications. Write for data.

Specify:

1. Catalog number and if catch basin grate (otherwise manhole cover is furnished).
2. Gray or ductile cast iron.

Also Specify if Needed: Type R steel or bronze butt hinges (see p. 13); lift handles or locking device (see p. 18); cast iron manhole steps (see p. 19); non-magnetic or sparkproof.

Catalog No.	Dimensions in Inches A	B	C	E	F	Wt. Lb.
Square						
R-6662-A	12¼x12¼	1	11½x11½	15x15	6	85
R-6662-B	13¾x13¾	1½	12x12	18x18	4	130
R-6662-C	18x18	1½	16x16	22x22	4	205
R-6662-D	18x18	1½	16x16	24x24	4½	135
R-6662-E	20x20	1½	18x18	24x24	4	205
R-6662-G	21¾x21¾	1½	20x20	26x26	4	225
R-6662-H	23¾x23¾	1½	22x22	28x28	4	300
R-6662-J	25¼x25¼	1¾	23x23	31½x31½	4	350
R-6662-K	25¾x25¾	1½	24x24	30x30	4	360
R-6662-L	27x27	1¾	25x25	33½x33½	4	360
R-6662-M	27¾x27¾	1½	26x26	32x32	4	370
R-6662-N	29½x29½	1½	28x28	34x34	4	400
R-6662-O	30⅜x30⅜	1¾	28x28	34x34	4	350
R-6662-P	31¾x31¾	1½	30x30	37x37	4	410
R-6662-Q	38x38	2	34x34	42x42	4	600
R-6662-R†	37½x37½	1½	36x36	42x42	4	515
R-6662-S*†	44x44	1½	42x42	49x49	4	840
R-6662-T*†	50x50	1½	48x38	56x56	4	1185
R-6662-U*†	57x57	1½	54x54	64x64	4½	1200
Rectangular						
R-6663-1	12x34	1½	10x32	16¼x38¼	4	250
R-6663-A	14x20	1½	12x18	18x24	4	160
R-6663-B	13½x25½	1½	12x24	18x30	4	240
R-6663-C	19½x25½	1½	18x24	24x30	4	250
R-6663-D	19¾x31¾	1½	18x30	24x36	4	300
R-6663-E	19¾x37¾	1½	18x36	24x42	4	375
R-6663-E1	20x44	1½	18x42	24x48	4	415
R-6663-F	22x32	1¼	20x30	26x36	4	300
R-6663-G	26x30	1½	23¾x27¾	34¾x38¾	6	400
R-6663-H	25½x31½	1½	24x30	30x36	4	400
R-6663-J	25¾x37¾	1½	24x36	30x42	4	410
R-6663-K†	25¾x49¾	1½	24x48	30x54	4	510
R-6663-L	26x32	1¾	25x31	30x36	4	400
R-6663-M†	31¾x37¾	1½	30x36	36x42	4	525
R-6663-N†	31½x49½	1½	30x48	36x54	4	650
R-6663-O*†	36x60	1¼	34x58	40x64	6	1000
R-6663-O1*†	38x50	1½	36x48	44½x56½	4	775
R-6663-P*†	44x62	1⅜	42x60	48x66	4	1125

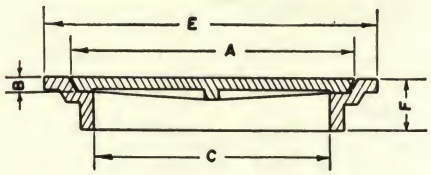
* Frame in sections bolted at corners. † Two piece grate or cover.



R-6663-0 Double Manhole Cover and Frame



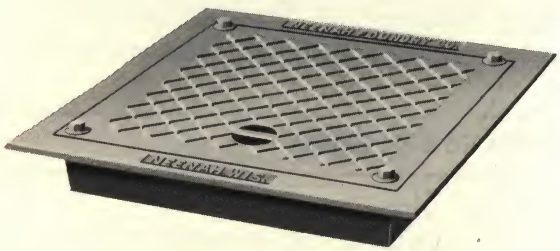
R-6663 Catch Basin Grate and Frame



MANHOLE COVERS, FRAMES

R-6665, for slab with bronze bolts

Furnished as shown with countersunk or exposed bolts. With rubber or jute gasket when specified. Also with 8 or 12 bolts. Supplied on any R-6660-1 or R-6662-3 series standard frames and covers.

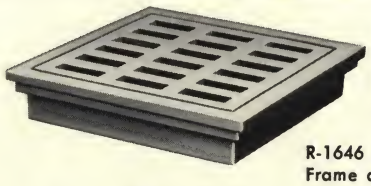




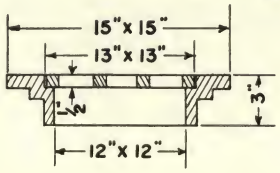
SUMP FRAME, GRATE

R-1646, square, for slab

Designed for use in electric conduit manhole for drainage (a companion piece for manhole covers such as R-1640, p. 6).
Total weight—50 pounds.
Specify: Catalog number and if gray or ductile cast iron.



R-1646 Sump Frame and Grate



MANHOLE COVERS, CATCH BASIN GRATES† FRAMES

R-6660 series, light duty, square, for slab
R-6661 series, light duty, rectangular, for slab

Designed for coal hole, cistern, well, pump and inspection openings. All castings are asphalt coated.
Type S Streamlined Hinges—modern, safe, practical. As illustrated, both lift ring and solid hinges are flush with top surface, providing smooth walking. Hinges are selfcleaning and concealed to prevent damage or removal when installed. Streamlined closing position, uninterrupted smooth, non-skid top surface.

Specify:

1. Catalog number and if catch basin grate (otherwise manhole cover furnished).
2. Gray or ductile cast iron.
3. If Type R steel or bronze butt hinge, or Type S streamlined hinge (otherwise furnished without hinges).

Also Specify if Needed: Ratchet (may be used with hinged castings); countersunk or exposed bolts; rubber or jute gasket (for use with bolts); lift handles (see p. 18); locking device and hasp (see p. 18).

Catalog No.	Dimensions in Inches A	B	C	E	F	No. Covers	Wt. Lb.
Square							
R-6660-A†	12x12	¾	10x10	18½x18½	4	1	80
R-6660-C†	13x13	⅝	12x12	15x15	3	1	70
R-6660-D	15x15	⅝	13x13	19x19	4	1	90
R-6660-F	18½x18½	½	17x17	23x23	3	1	120
R-6660-G	20x20	⅝	18½x18½	24x24	4	1	150
R-6660-H	21½x21½	¾	19½x19½	24½x24½	4	1	150
R-6660-J	24x24	¾	21½x21½	28½x28½	4	1	150
R-6660-K	25½x25½	¾	24x24	30x30	4	1	190
R-6660-M	30x30	¾	28x28	34x34	4	1	250
R-6660-N	32x32	¾	30x30	37x37	4	1	300
R-6660-P	38x38	¾	36x36	46x46	4	1	465
R-6660-Q	39x39	¾	37x37	44x44	4	1	500
R-6660-R*	44x44	1	42x42	49x49	4	2	675
Rectangular							
R-6661-1†	8¾x32½	¾	6¼x30	14x38	4	1	175
R-6661-A†	12¼x40½	½	10¾x38½	16¼x44½	4	1	200
R-6661-B†	14x26	½	12x24	15x27	4¾	1	90
R-6661-C	18x32	¾	16x30	20x34	4	1	180
R-6661-D†	20x50	½	18x48	22x52	4	2	250
R-6661-E	21½x24½	½	20x23	26x29	6	1	200
R-6661-F	22x32	⅞	20x30	26x36	5¼	1	240
R-6661-F2*†	22½x66½	¾	20x64	28x72	4	2	575
R-6661-F3*†	24½x56½	¾	22x54	30x62	4	2	500
R-6661-H	26x32	⅝	24x30	30x36	4	1	250
R-6661-J	26x38	⅝	24x36	30x42	4	1 or 2	275
R-6661-K	24x44	⅝	24x42	30x48	4	1	350
R-6661-L	26x50	⅝	24x48	30x54	4	2	430
R-6661-N	27x63	⅝	24x60	31x67	6	2	575
R-6661-P	29x32	⅝	27x30	34x37	4	1	275
R-6661-Q	29x38	⅝	27x36	34x43	4	1	300
R-6661-R	29x44	⅝	27x42	34x49	4	2	560
R-6661-S	32x35	⅝	30x33	37x40	4	1	300
R-6661-T	32x38	⅝	30x36	37x43	4	1	330
R-6661-U	32x44	⅝	30x42	37x49	4	1 or 2	420
R-6661-V	32x50	⅝	30x48	36x54	4	1 or 2	425
R-6661-V1*	32x74	⅝	30x72	36x78	4	2	575
R-6661-X	38x44	⅝	36x42	44x50	4	1 or 2	475
R-6661-Y*†	44x110	⅝	42x108	52x118	4	3	1350

* Frame in Sections Bolted at Corners. † Not furnished with Type "S" Hinges.

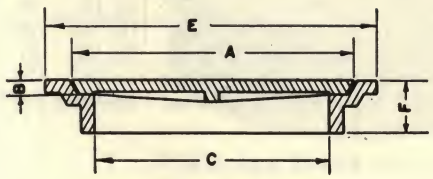
† Not illustrated.



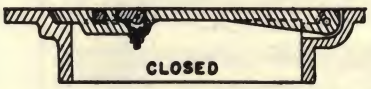
R-6661-L Frame with Type G Lift Handles, Double Manhole Cover and Type S Hinges



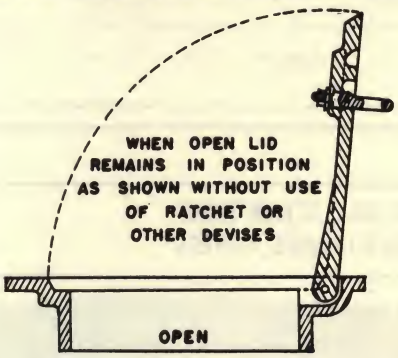
R-6660-K Manhole Frame and Cover with Type S Hinges and Lift Handle



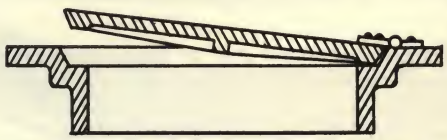
Frame and Cover Section



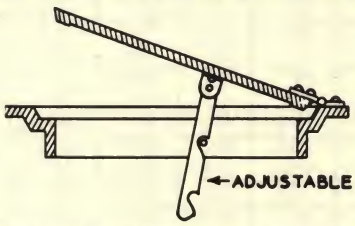
Frame with Type S Streamlined Hinged Cover Closed



Frame with Type S Streamlined Hinged Cover Open



Frame with Type R Butt Hinged Cover Open



Frame with Type R Hinged Cover and Rachet

WATER, GAS, STEAM TIGHT MANHOLE FRAMES, COVERS

R-1915 series, heavy duty, round, with bolted cover, for built-up manholes

Bearing surfaces are machined. Furnished with rubber gaskets and countersunk, bronze hexagonal-head, cap screws and concealed pickhole (for pickhole detail, see p. 15).

Specify:

1. Catalog number and if gray or ductile cast iron.
2. Anchor bolts and bolt holes if needed.

Also Specify if Needed: Locking device, or lift handles (see p. 18); cast iron manhole steps (see p. 19).



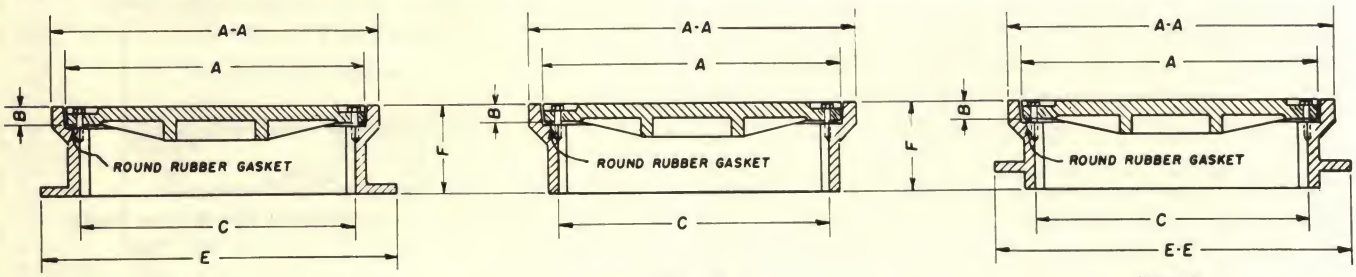
R-1915-D Manhole Frame and Bolted Cover, Type L



R-1915-H2 Manhole Frame and Bolted Cover, Type P

Catalog No.			Dimensions in Inches							Wt.
Type L	Type M	Type P	A	AA	B	C	E	EE	F	Lb.*
R-1915-A	R-1915-A1	R-1915-A2	21½	24	1¼	19½	36	32	7½	400
R-1915-B	R-1915-B1	R-1915-B2	21¾	25¼	1⅛	20	36	30	8½	400
R-1915-C	R-1915-C1	R-1915-C2	23	26	1⅜	20¼	32¼	31	7	390
R-1915-D	R-1915-D1	R-1915-D2	24	28	1¼	20¼	36	32	7½	515
R-1915-E	R-1915-E1	R-1915-E2	25	28	1	22	28½	28½	6	325
R-1915-F	R-1915-F1	R-1915-F2	25½	28	1¼	22	34	30	9	460
R-1915-G	R-1915-G1	R-1915-G2	26	28	1½	24	36	30¾	7½	375
R-1915-H	R-1915-H1	R-1915-H2	26	27¾	1	24	32	30¾	8	340
R-1915-J	R-1915-J1	R-1915-J2	29	31	1¾	27	35	34	6	510
R-1915-M	R-1915-M1	R-1915-M2	34	36	1¾	30	36	36	8	675
R-1915-N	R-1915-N1	R-1915-N2	40	42	1¾	36	42	42	8	800
R-1915-O	R-1915-O1	R-1915-O2	44	46¼	1	42	50	46	7	750

*Weights shown this table apply to type L and P assemblies only.



Type L Type M Type P

WATER, GAS, STEAM TIGHT MANHOLE FRAMES, COVERS

R-1916 series, heavy duty, round, with bolted cover, for built-up manholes

Heavy construction and improved design combine to make these castings ideal for pressure purposes. Machined bearing surfaces.

Specify:

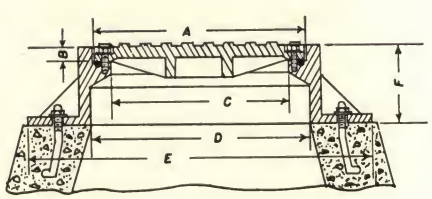
1. Catalog number and if gray or ductile cast iron.
2. Anchor bolts and bolt holes if needed.



R-1916-F Manhole Frame and Bolted Cover

Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	D	E	F	
R-1916-A	12	1⅛	11	13	19	4	80
R-1916-B	18	1½	17	19	25	4½	125
R-1916-C	23	1½	20½	25½	36	9	320
R-1916-D	24	1½	22½	25½	35	7½	315
R-1916-E	25	1½	23	27	38	9	400
R-1916-F	26½	1½	24	28½	39	7	400
R-1916-G	28½	1½	26	31	42	9	550
R-1916-H	32½	1½	30½	36	46	7	575
R-1916-J	32½	1½	30½	36	46	10	775
R-1916-K	38	1½	36	40	50	10	850
R-1916-L*	44½	1¾	42	46	56	10	1200
R-1916-M*	50½	2	48	54	64	10	1775

*With 22 inch diameter center lid like R-1740-E and F.



WATER, GAS, STEAM TIGHT MANHOLE FRAMES, COVERS

R-6460 series, heavy or light duty, with bolted cover, round, for slab

R-6464 series, heavy duty, with bolted cover, round, for built-up manholes or slab

Pressure type. Recommended for use over pits and reservoirs. Furnished with rubber gaskets and concealed watertight pickholes. Bearing surfaces and grooves for round rubber gaskets are machine finished.

Specify:

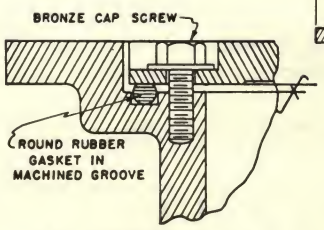
1. Catalog number and if gray or ductile cast iron.
2. For 6460 series, light duty if desired (otherwise heavy duty furnished).
3. For 6464 series, if for built-up manholes (otherwise furnished for slab).

Also Specify if Needed: Locking device or lift handles (see p. 18); cast iron manhole steps (see p. 19); anchor ring for 6460 series.

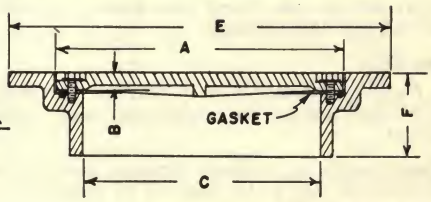
Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	E	EE	F	
R-6460-A	21	1½	18	27½	—	5	225
R-6460-B	23	1¾	21	30	—	4	275
R-6460-C	27	1¼	24	33½	—	4	300
R-6460-D	29	1¾	27	35	—	6	450
R-6460-E1	33	2	30	39½	—	6	560
R-6460-G1	38½	1½	36	49	—	4½	800
R-6460-H	44	1	42	48	—	6	750
R-6460-J	50	1	48	54	—	6	850
R-6464-A	21½	1¼	19½	24	24	7½	325
R-6464-B	22	1⅛	20	24	24½	8½	350
R-6464-C	23	1⅜	20¼	26¼	25	7	400
R-6464-D	25	1	22	26½	25	6	325
R-6464-E	25½	1¼	22	28	26	9	375
R-6464-F	26	1	24	27¾	27	8	350
R-6464-G	29	1¾	27	31	31	6	520
R-6464-G1	33	2	30	39½	35½	6	600
R-6464-H1	38½	1½	36	49	42	4½	825
R-6464-J	44	1	42	46	45	6	775
R-6464-K	50	1	48	54	52	6	900



R-6460 Series Manhole Frame and Cover

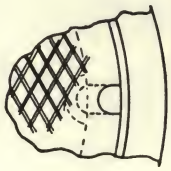


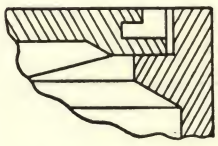
Bolt and Gasket Detail



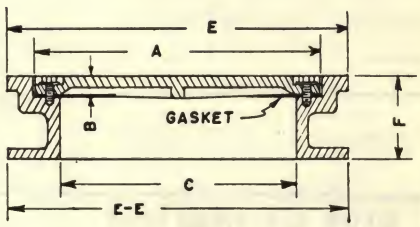


R-6464 Series Manhole Frame and Cover





Detail Showing Concealed Watertight Pickholes



RESERVOIR OR TANK WATER, GAS, STEAM TIGHT OR DUSTPROOF FRAMES, COVERS

R-1950 series, light duty, round, with unbolted or bolted cover, for built-up manholes

Cover fits over top and outside of frame, making the manhole watertight. Frame top extends 2 inches above slab to prevent surface water from entering pit.

Specify:

1. Catalog number and if gray or ductile cast iron.
2. If for watertight use, unbolted cover.
3. If for gas or steam pressure use, cover secured to frame by three bronze stud bolts.
4. If for dustproof use, bearing machined finish, unbolted cover.

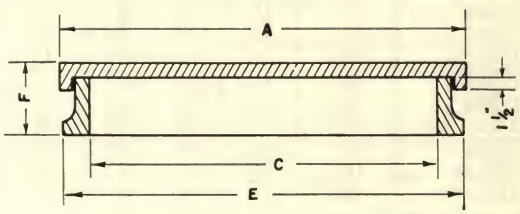
Also Specify if Needed: Lift handles or locking device (see p. 18); cast iron manhole steps (see p. 19).

Catalog No.	Dimensions in Inches				Wt. Lb.
	A	C	E	F	
R-1950	45	42	45	5½	455
R-1950-1	39	36	39	6	350
R-1950-A	34	31	34	5	220
R-1950-B	27	24	27	5	190
R-1950-B*	25¼	24	26	4	90
R-1950-C	21	18	21	4	85
R-1950-D	18	15	18	4	75
R-1950-E	15	12	15	4	70

* Light weight.



R-1950 Reservoir or Tank Frame and Unbolted Cover



WATER, GAS, STEAM TIGHT OR FROSTPROOF MANHOLE FRAMES, COVERS

R-1757 series, heavy duty, with bolted inner cover, round, for built-up manholes

With bronze hex. head cap screws, rubber gasket and machined bearing surfaces.

Specify:

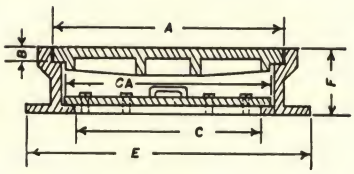
1. Catalog number and if gray or ductile cast iron.
2. If non-bolted for frostproof use (otherwise furnished bolted).

Also Specify if Needed: Special locking device (see p. 18); lift handle (see p. 18) instead of pickhole; cast iron manhole steps (see p. 19).

Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	CA	E	F	
R-1757-A	23	1⅜	17	19¾	32¼	7	500
R-1757-B	21¾	1⅛	17	19¾	36	8½	500
R-1757-C	24	1¼	18	20	36	7½	675
R-1757-D	25	1	19	21½	28½	6	380
R-1757-E	25½	1¼	19	21½	34	9	575
R-1757-F	26	1	21	23½	33	8	415
R-1757-G	29	1¾	24	26½	35	6	650
R-1757-J	44	1	39	41½	50	7	1000



R-1757-C Manhole Frame and Cover with Bolted Inner Cover



WATER, GAS, STEAM TIGHT AND FROSTPROOF MANHOLE FRAMES, COVERS

R-1755 series, heavy duty, round, with inner cover and locking bar for built-up manholes

For low pressure. All with rubber gasket, bronze tightening wheel, machined bearing surfaces and channel locking bar. Easy access, remove without tools.

Specify:

1. Catalog number and if gray or ductile cast iron.
2. If for slab, write for data sheet (otherwise furnished for built-up manholes).

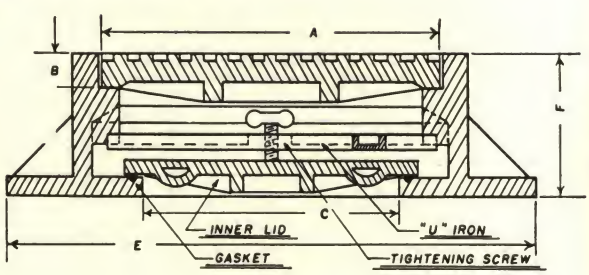
Also Specify if Needed: Lettering on cover for identification; lift handles, see p. 18 (otherwise concealed pickhole furnished, p. 15); locking device (see p. 18); cast iron manhole steps (see p. 19).

Catalog No.	Dimensions in Inches					Wt. Lb.
	A	B	C	E	F	
R-1755-B	23	1½	18	36	9	425
R-1755-C	24	1½	20	35	7½	415
R-1755-E	26½	1½	22	39	7	475
R-1755-F	28½	1½	24	42	9	800
R-1755-G	32½	1½	28	46	7	850
R-1755-H	32½	1½	28	46	10	1075
R-1755-J	38	1½	34	50	10	1000
R-1755-K*	44½	1¾	40	56	10	1650
R-1755-L*	50½	2	46	62	10	2150

* Furnished with 22" center top cover.



R-1755 Manhole Frame and Cover



WATER, GAS, STEAM TIGHT MANHOLE FRAMES, COVERS

R-1871 series, heavy duty, with inner cover and locking bar, square, for built-up manholes



Low pressure type. Inner covers have bronze tightening screw, rubber gasket and channel iron locking bar, providing watertight construction.

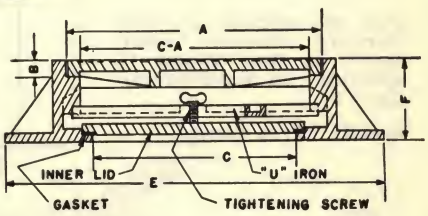
Specify:

1. Catalog number and if gray or ductile cast iron.
2. Bearing surfaces machined if for low steam and gas pressure (at extra cost).

Also Specify if Needed: Special lettering on cover (at no extra cost); lift handles (see p. 18); cast iron manhole steps (see p. 19).

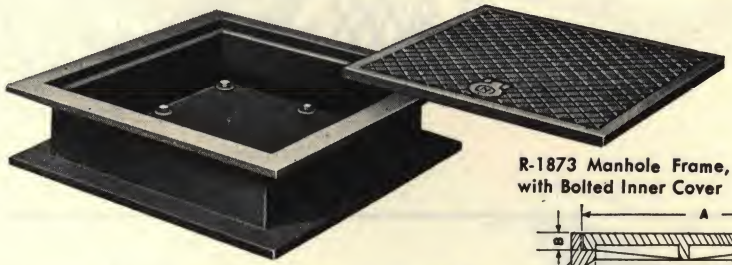
Catalog No.	Dimensions in Inches						Wt. Lb.
	A	B	C	CA	E	F	
R-1871-A	20x20	1¾	16x16	18x18	31x31	10	500
R-1871-B	27x27	2	23x23	25x25	36x36	7	600
R-1871-C	32x32	1¾	28x28	30x30	42x42	6	700
R-1871-D*	36x36	1¾	32x32	34x34	45x45	7	1050
R-1871-E*	50x50	1¾	46x46	48x48	62x62	8	1900

* 2 channel irons and tightening wheels.



WATER, GAS, STEAM TIGHT OR FROSTPROOF MANHOLE FRAMES, COVERS

R-1873 series, medium or heavy duty, square with unbolted or bolted inner cover, for built-up manholes



R-1873 Manhole Frame, Cover with Bolted Inner Cover

For frostproof applications, inner cover is unbolted. For pressure use rubber gaskets, bolts and machined surfaces are required. With Type A or B frame.

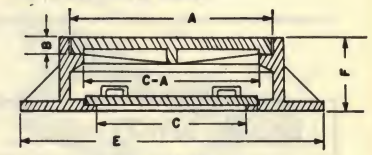
Specify:

1. Catalog number and frame type.
2. Gray or ductile cast iron.
3. If to be frostproof, unbolted inner cover.
4. If for gas, steam and water pressure, with rubber gaskets, bolted down cover and machined bearing surfaces (at extra cost).

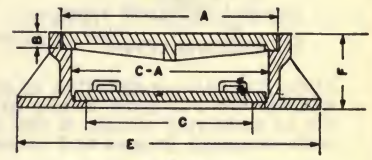
Also Specify if Needed: Lift handle (see p. 18); locking device (see p. 18); cast iron manhole steps (see p. 19).

Catalog No.	Dimensions in Inches						Frame Type	Wt. Lb.
	A	B	C	CA	E	F		
R-1873-A	20x20	1¾	16x16	18x18	31x31	5	A	375
R-1873-B	21x33	¾	16x28	18x30	27x39	4	B	345
R-1873-C	22½x30	¾	19x27	21x29	27x35	5	B	365
R-1873-D	24x24	2	20x20	22x22	35x35	6	A	540
R-1873-E	25x25	1	20x20	22x22	34x34	6	B	500
R-1873-F	24x42	¾	20x38	22x40	31x49	4	B	675
R-1873-G	26x26	1	22x22	24x24	30x30	9	B	520
R-1873-H	27x27	2	23x23	25x25	36x36	6	A	625
R-1873-J	27x30	1	23x26	25x28	35x38	8	B	900
R-1873-K	32x32	1¾	28x28	30x30	42x42	6	A	725
R-1873-L	32x32	1½	28x28	30x30	36x36	6	B	710
R-1873-M	33x39	1¼	28x34	30x36	36x42	6	B	820
R-1873-O*	36x36	1¾	32x32	34x34	45x45	7	A	1000
R-1873-P*	36x60	2	31x55	34x58	48x72	6	B	1550
R-1873-Q*	50x50	1¾	45x45	48x48	62x62	8	A	1700

* Top cover in 2 pieces.



Type A Frame



Type B Frame



Also bolted

RESERVOIR OR TANK WATERTIGHT FRAMES, COVERS

R-1872 series, light duty, square, unbolted or bolted cover Type A frame for slab, Type B frame for slab or built-up construction



R-1872-D with Type B Frame

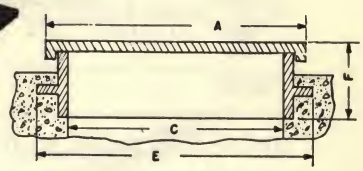
Cover fits over top and outside of frame, making the manhole watertight. Top of frame should extend several inches above slab to prevent surface water from entering pit.

Specify:

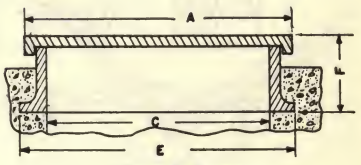
1. Catalog number and if gray or ductile cast iron.
2. If Type A frame (otherwise Type B furnished).
3. If cover to be bolted to frame with four bronze bolts (otherwise unbolted furnished).

Also Specify if Needed: Locking device or lift handles (p. 18); cast iron manhole steps (p. 19).

Catalog No.	Dimensions in Inches				Wt. Lb.
	A	C	E	F	
R-1872-A	14½x14½	12x12	16x16	4	75
R-1872-B	21x21	18½x18½	24x24	4	170
R-1872-C	24x24	21½x21½	28½x28½	5	215
R-1872-D	27x27	24x24	30x30	5	220
R-1872-E	33x33	30x30	36x36	5	270
R-1872-F	39x39	36x36	42x42	6	425



Type A Frame



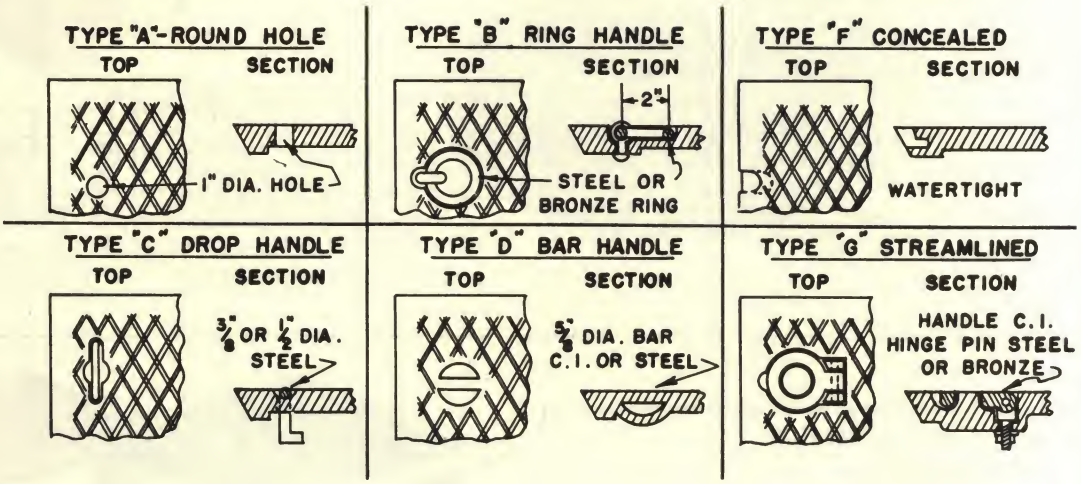
Type B Frame

LIFT HANDLES

for manhole covers

Can be supplied on any standard manhole cover shown in this catalog if specified. All approved designs.

Specify: Type wanted.

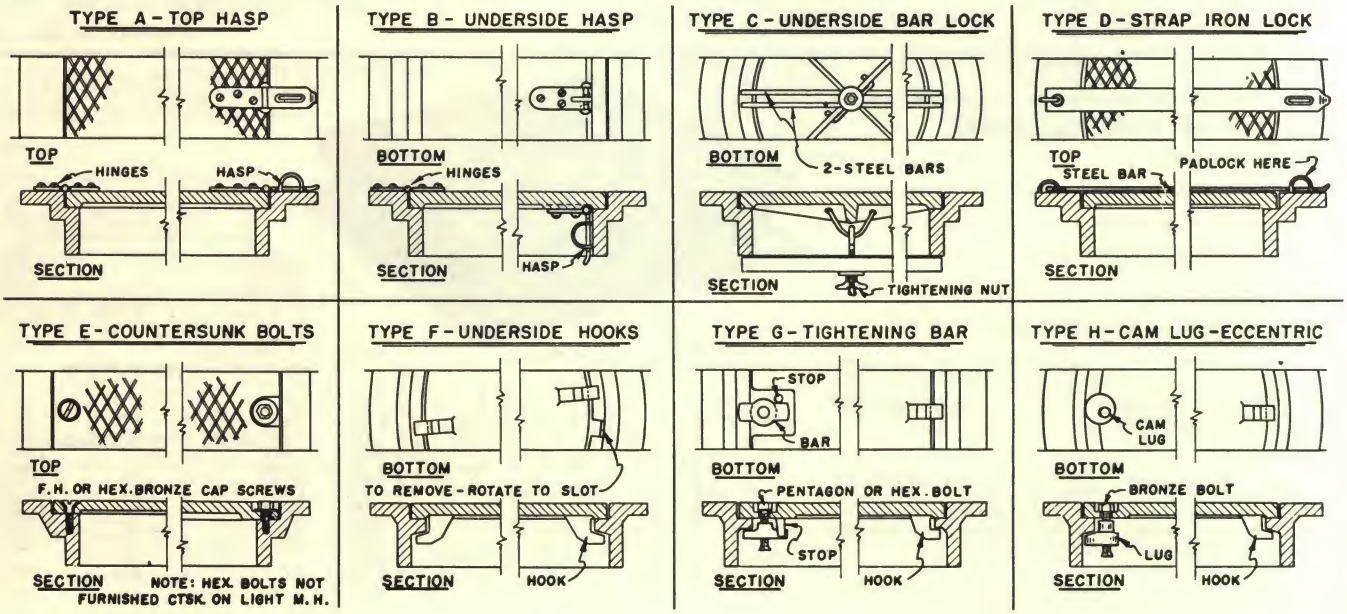


LOCKING DEVICES

top and underside types, for manhole covers

Used for slab construction or for built-up manholes when required. We will assist in any problem for locking manhole covers to meet your needs. A few of the locking devices furnished with standard frames and covers are shown below.

Specify: Type required.



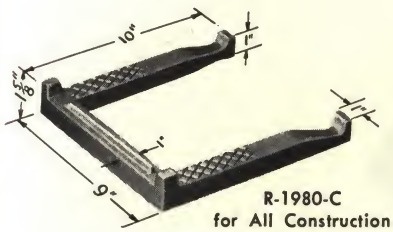
CAST IRON-MANHOLE STEPS

R-1980 and R-1981 series—cast iron

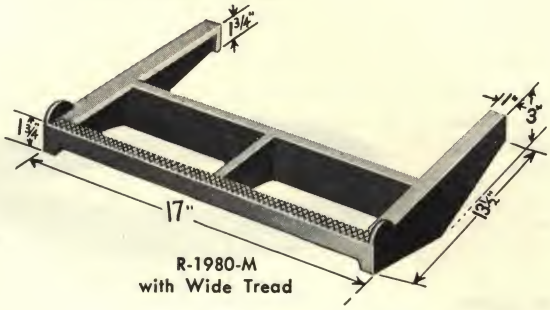
For concrete, brick or block manholes and catch basins. Also sewage disposal and water treatment plants, concrete and brick tanks, pits and exposed walls, chimney and silo ladders, etc. Asphalt coated, projecting or flush pocket types, adaptable to any ladder construction. Steps can be set vertical, staggered or other variations for convenient access. In some instances projecting steps cannot be used because of inadequate clearance. For this application we suggest the flush type which is a permanent, safe installation providing ready access under any corrosive conditions.

Cast iron manhole steps are manufactured from hi-test metal having minimum tensile strength of 35,000 pounds per square inch. Actual sustained load on the castings shows a very high safety factor. Cast iron steps permanently remain in service because they will resist rust and corrosion. They are safe, economical. Immediate shipment from stock.
Write for data sheets illustrating the complete line of Neenah cast iron manhole steps.

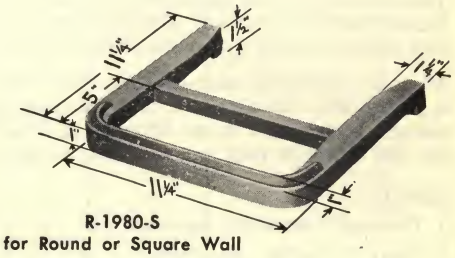
Specify: Catalog number.



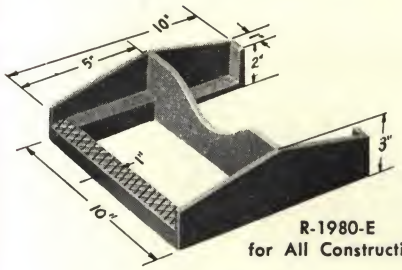
R-1980-C
for All Construction



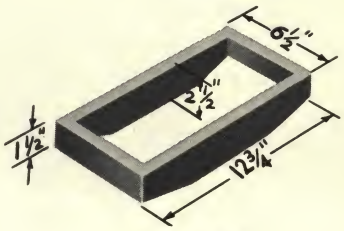
R-1980-M
with Wide Tread



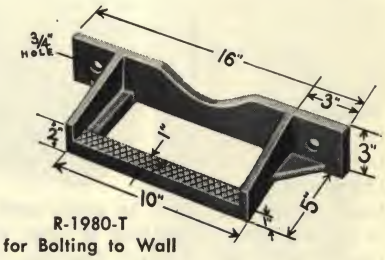
R-1980-S
for Round or Square Wall



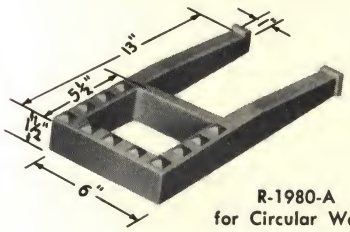
R-1980-E
for All Construction



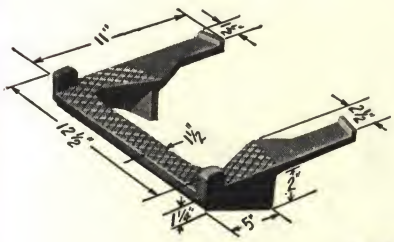
R-1980-R
for Sewage Disposal



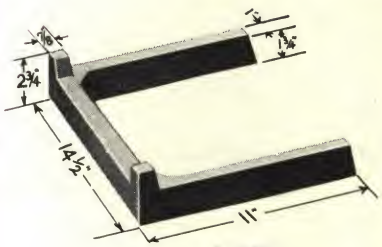
R-1980-T
for Bolting to Wall



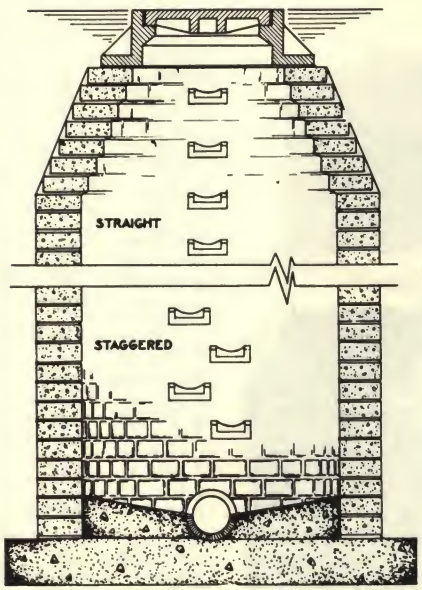
R-1980-A
for Circular Walls



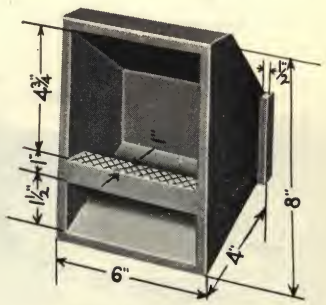
R-1980-I
for Circular Walls



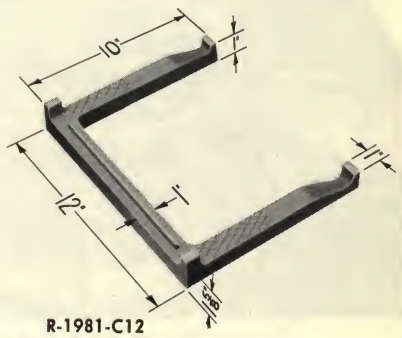
R-1980-J
Heavy Construction



Typical Installations



R-1980-Z
Flush Pocket Type



R-1981-C12
for All Purposes

MANHOLE ADJUSTING RINGS

R-1979 series, heavy duty, round, Type A with vertical outside surface Type B with flared outside surface, for highway resurfacing

Used wherever pavement is resurfaced and manhole cover must be raised to new grade. They eliminate the necessity of raising or replacing existing manhole frame on resurfacing projects. The cover recess is the same depth and diameter as existing manhole frame. The amount of raise coincides with thickness of resurfacing material, thereby bringing the manhole lid to new position flush with refinished roadway surfaces.

Manhole adjusting rings can be placed rapidly and are a permanent installation. Use of adjusting rings may reduce raising cost to as little as 20% of digging up the old manhole ring and resetting to new grade.

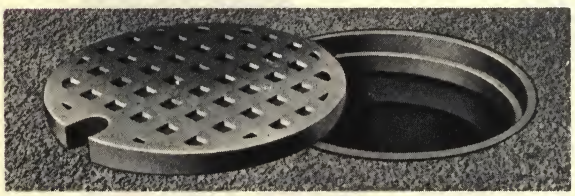
Specify:

1. Catalog number, if standard size.
2. Gray or ductile cast iron.

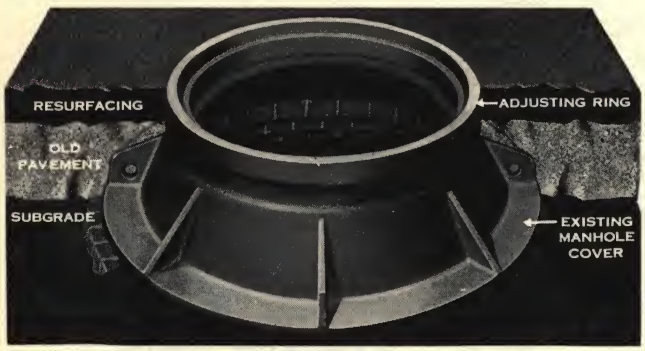
Also Specify when Needed: Adjusting rings for square and rectangular frames; anchors for special conditions; or dimensional variations to meet special requirements, such as adjusting ring diameter and seat depth machined to coincide with existing manhole covers.

These dimensions may be varied: (see table)
Dimension A—in ⅛ to ¼ inch steps.
Dimension B—1 to 2 inches in ⅛ inch steps.
Dimension C—Variable.
Raise (Dimension M.) In event new grade dimension M is less than dimension B plus ½ inch it may be necessary to reduce cover diameter A and supply new smaller covers.

Furnish complete dimensions in ordering special sizes. We will offer shop drawings.



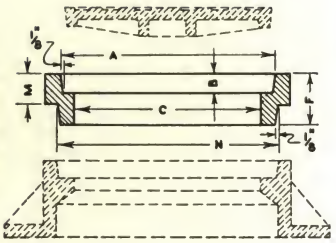
Adjusting Ring Installed



Cutaway View of Adjusting Ring Installation

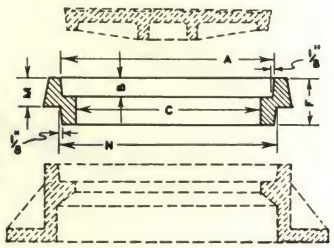


Type A Adjusting Ring





Type B Adjusting Ring



Catalog No.	Dimensions in Inches					Type
	A	B	F	M	N	
R-1979-A1	21½	1	3	2	21¼	A
R-1979-A2	21½	1	3½	2½	21¼	A
R-1979-A3	21½	1	4	3	21¼	A
R-1979-B1	22	1½	3½	2	21¾	A
R-1979-B2	22	1½	4	2½	21¾	A
R-1979-B3	22	1½	4½	3	21¾	A
R-1979-C1	22½	1½	3½	2	22¼	A
R-1979-C2	22½	1½	4	2½	22¼	A
R-1979-C3	22½	1½	4½	3	22¼	A
R-1979-D1	22¾	1½	3½	2	22½	B
R-1979-D2	22¾	1½	4	2½	22½	A&B
R-1979-D3	22¾	1½	4½	3	22½	A&B
R-1979-E1	23	1½	3½	2	22¾	A&B
R-1979-E2	23	1½	4	2½	22¾	A&B
R-1979-E3	23	1½	4½	3	22¾	A
R-1979-F1	23¼	1½	3½	2	23	A
R-1979-F2	23¼	1½	4	2½	23	A
R-1979-F3	23¼	1½	4½	3	23	A
R-1979-G1	23½	1½	3½	2	23¼	A
R-1979-G2	23½	1½	4	2½	23¼	A
R-1979-G3	23½	1½	4½	3	23¼	B
R-1979-H1	24	1½	3½	2	23¾	A&B
R-1979-H2	24	1¾	4¼	2½	23¾	A&B
R-1979-H3	24	1¾	4¾	3	23¾	A&B
R-1979-J1	24½	1½	3½	2	24¼	A&B
R-1979-J2	24½	1¾	4¼	2½	24¼	A&B
R-1979-J3	24½	1¾	4¾	3	24¼	A&B
R-1979-K1	25	1½	3½	2	24¾	A
R-1979-K2	25	1¾	4¼	2½	24¾	A
R-1979-K3	25	1¾	4¾	3	24¾	A
R-1979-L1	25½	1½	3½	2	25¼	A
R-1979-L2	25½	1¾	4¼	2½	25¼	A
R-1979-L3	25½	1¾	4¾	3	25¼	A
R-1979-M1	26	1⅜	3 5/16	2	25 15/16	A&B
R-1979-M2	26	1⅜	3 13/16	2½	25 15/16	A&B
R-1979-M3	26	1⅜	4 5/16	3	25 15/16	A&B
R-1979-N1	29	1⅜	3 5/16	2	28 15/16	B
R-1979-N2	29	1⅜	3 13/16	2½	28 15/16	B
R-1979-N3	29	1⅜	4 5/16	3	28 15/16	B
R-1979-O1	32	1⅜	3 5/16	2	31 15/16	B
R-1979-O2	32	1⅜	3 13/16	2½	31 15/16	B
R-1979-O3	32	1⅜	4 5/16	3	31 15/16	B
R-1979-P1	33½	1½	3½	2	33 7/16	B
R-1979-P2	33½	1½	4	2½	33 7/16	B
R-1979-P3	33½	1½	4½	3	33 7/16	B
R-1979-Q1	36½	1½	3½	2	36 7/16	B
R-1979-Q2	36½	1½	4	2½	36 7/16	B
R-1979-Q3	36½	1½	4½	3	36 7/16	B

CATCH BASIN TRAPS

R-3700 to R-3707 series

Cast iron catch basin traps are used extensively on sewer catch basins or manholes to prevent clogging on sanitary systems. They provide a waterseal against escaping gases. Traps with drop type catch basins provide effective means of keeping pipe lines entirely clean. The drop portion of inlet retains all solid material and the trap prevents all floating debris from entering outlet pipe. All catch basin traps shown are of approved design.

Specify:
Type and pipe size.
If needed, R-3705-4, 6 and 8 gas sealed cleanout cover (otherwise furnished plain).

Catalog No.	Dimensions in Inches					Setting Method	Notes
	Vertical Height	Overall Width	Horiz. Depth	For Pipe Size	Inside Dia.		
R-3700	18	16	7	to 12		on 2 hooks	
R-3701-6	16	12	6½	to 6		on 2 hooks	Cast Iron Handle.
R-3701-8	18	12	6½	8		on 2 hooks	Bottom of trap 6″ min. below flow line.
R-3701-10	20	12	6½	10		on 2 hooks	
R-3703-12	19	17	8½	to 12		in wall	5″ Cleanout opening.
R-3703-15	22	17	11	15		in wall	5″ Cleanout opening.
R-3704	15½	16	9½	to 12		bolted	Note Vent holes.
R-3705-4	9	6	22	4	4	in wall	3″ Cleanout opening.
R-3705-6	11	8	24	6	6	in wall	4″ Cleanout opening.
R-3705-8	13	10	26	8	8	in wall	5″ Cleanout opening.
R-3705-10	16	12	26	10	10	in wall	6″ Cleanout opening.
R-3705-12	19	14	28	12	12	in wall	8″ Cleanout opening.
R-3705-15	20½	17	31	15	15	in wall	8″ Cleanout opening.
R-3705-18	22	20	34	18	18	in wall	8″ Cleanout opening.
R-3706	22	19¾	11⅜	to 15		on 2 hooks	Note radius to fit wall. 4″ Cleanout opening.
R-3707-8	22	11	11½	6 and 8	8	in wall	5″ Cleanout opening. Sets flush with wall.
R-3707-10	24	13	11½	10	10	in wall	
R-3707-12	28	14¾	11½	12			


R-3700


R-3701 with Cast Iron Hooks


R-3703

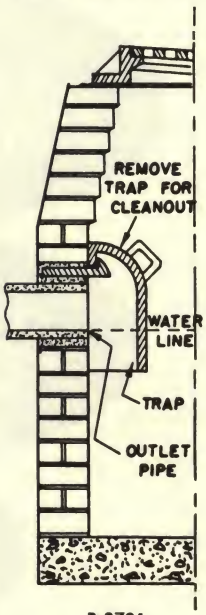

R-3705 Standard E-4-A-27-T
Note length of horizontal pipe sufficient to extend thru catch basin wall and caulk to bell of matching pipe.


R-3707

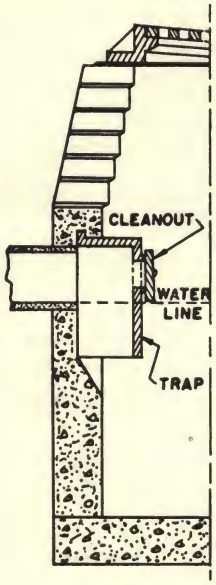

R-3704


R-3706

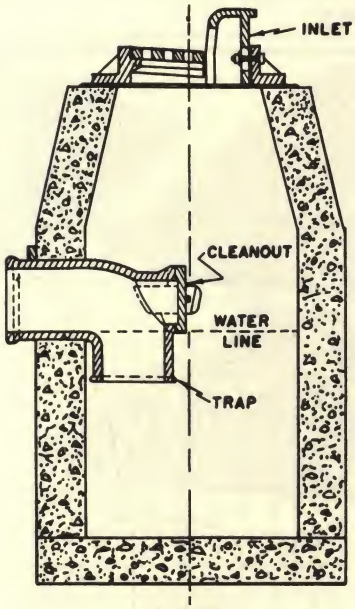
Typical Installations



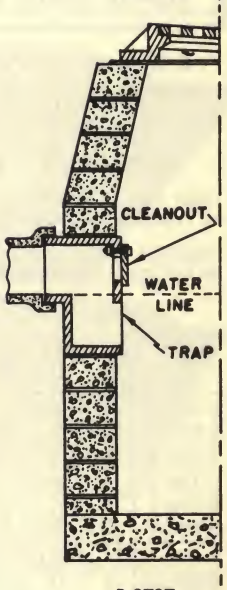
R-3701



R-3703



R-3705



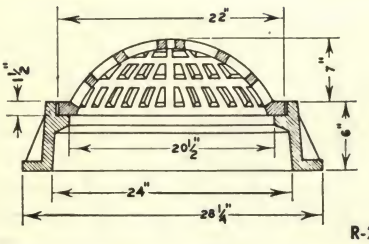
R-3707

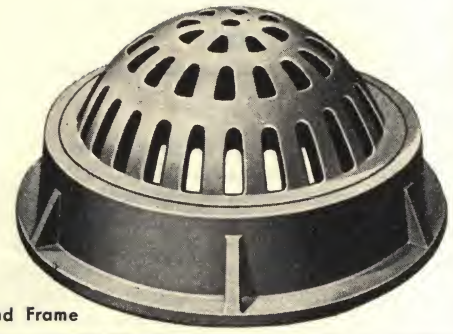
CATCH BASIN BEEHIVE GRATES, FRAMES

R-2510-A, heavy duty type AK, round or flat, for 24" sewer pipe bells or off roadway construction

Total weight—285 pounds.

Specify: Catalog number; if flat grate (otherwise beehive type furnished); if gray or ductile cast iron.





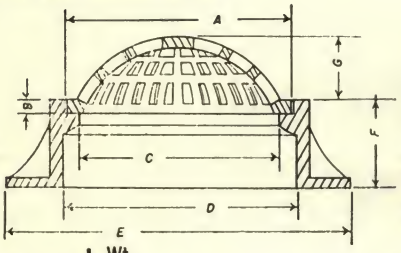
R-2510-A Grate and Frame

CATCH BASIN BEEHIVE GRATES, FRAMES

R-2560 series heavy duty, round, for off roadway construction

For drainage when flat grate might clog.

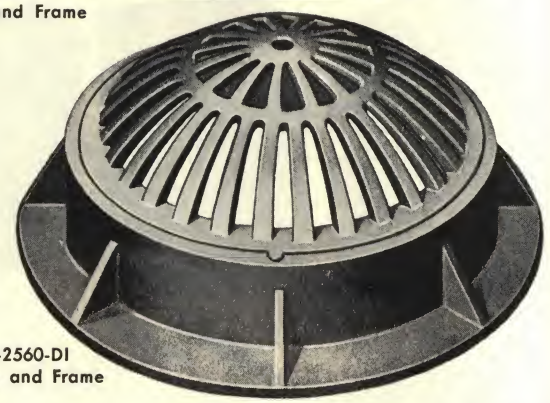
Specify: Catalog number; if gray or ductile cast iron.



Catalog No	Dimensions in Inches							Wt. Lb.
	A	B	C	D	E	F	G	
R-2560-A	12	1¼	11	13	19	4	4	80
R-2560-B	15½	1¼	15	15	21	5	3	140
R-2560-C	18	1¼	16½	20½	30	8	4	210
R-2560-C1	22	1½	20	23	28	4	4½	210
R-2560-C2	22	1½	20½	24	28¼	6	4½	275
R-2560-D	22	1½	20	24½	35	9	4½	315
R-2560-D1	22	1½	20	23	28	4	7	220
R-2560-D2	22	1½	20½	24	28¼	6	7	300
R-2560-D3	22	1½	20	24½	35	9	7	320
R-2560-E	23	1½	20½	25½	36	9	7	330
R-2560-E1	25¾	⅞	24⅛	26½	35½	7	6	285
R-2560-E2	25¾	⅞	24⅛	26½	35½	7	9	315
R-2560-E3	25¾	⅞	24⅛	23⅞	32⅞	8	6	275
R-2560-E4	25¾	⅞	24⅛	23⅞	32⅞	8	9	310
R-2560-F	29	1½	27	38	46	10	6	530



R-2560-E
Grate and Frame



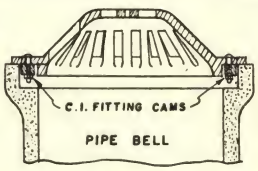
R-2560-DI
Grate and Frame

BEEHIVE GRATES ONLY

R-4340 series, heavy duty, round, for catch basin (with or without frame) or pipe bell

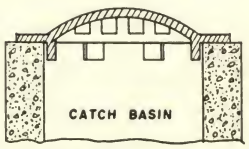
Used where debris may interfere with drainage such as roadside construction.

Specify: Catalog number; gray or ductile cast iron and adjusting cams if needed for R-4340-A.



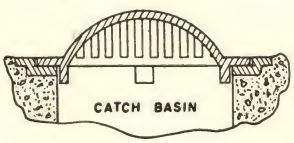
R-4340-A Type E Grate





R-4340-B Standard Type 8 Grate





WITH C.I. FRAME



R-4340-D Grate

Catalog No.	Dimensions in Inches							No. Lugs	Wt. Lb.
	O. Dia.	O.D. Lugs	Dia. Bhv	Ht. Bhv	Size Brs	Size Op	Pipe Size		
R-4340-A*	34	26¼	23⅞	6	1	1½	24	3	200
R-4340-B	33	23	23	3	1½	2	24	6	200
R-4340-C	33	29	23	7	1¼	1	24	4	225
R-4340-D	33	29	25	7	1	1	24	4	225
R-4340-E	33	23	27	4	2	2	24	2	200
R-4340-F	33	28	25	5	1	1	24	4	165
R-4340-F1	25½	21¾	17	3	1	1	18	4	90
R-4340-G	28	18	19	3	2	1¾	15	3	100
R-4340-H	25	15	17	3	1¾	1⅝	12	3	90

* Adjusting cams furnished only when specified.

CATCH BASIN GRATES, FRAMES

R-2571 series, heavy duty, round, concave or convex, for off roadway construction

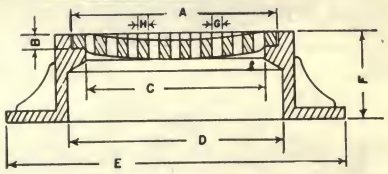
Specify: Catalog number; gray or ductile cast iron; and if with Type B convex or flat grate, see p. 4 (otherwise concave supplied).

Catalog No.	Dimensions in Inches									Wt. Lb.
	A	B	C	D	E	F	G	H	Conc.	
R-2571-A	22	1½	20	23	28	4	1⅜	1	⅝	170
R-2571-B	22	1½	20	23½	32	6	1⅜	1	⅝	260
R-2571-C	22	1½	20	24½	35	9	1⅜	1	⅝	320
R-2571-D	23	1½	20½	25½	36	9	1⅜	1	⅝	330
R-2571-D1*	25¾	⅞	24⅛	26½	35½	7	1⅛	1	⅝	360
R-2571-E	26	1½	24	28½	39	7	1⅛	1	⅝	360
R-2571-F	28½	1½	26	31	42	9	¾	¾	¾	600

* Machined horizontal bearing surface.



R-2571-C Concave Grate and Frame



DRAINAGE GRATES FOR PIPE BELL

R-4030 series, heavy duty; R-4040 series, light duty round, flat, fit in standard sewer pipe bell

Specify: Catalog number and pipe size; gray or ductile cast iron; R-4040 series without legs if needed (otherwise furnished with legs).

Pipe Size	Dimensions in Inches: Grate Dia.	Grate Thickness*	Wt. Lb.: Heavy Duty Series R-4030	Light Duty Series R-4040
4	5¾	1¼	8	5
6	8	2	12	9
8	10⅜	1¼	25	14
10	12⅝	2½	30	17
12	14¾	2½	38	35
15	18¼	2¾	62	50
18	22	2¾	115	75
21	25½	3	200	100
24	29	3¼	225	140
27	32¾	3½	275	160
30	36	3¾	300	180
36	42	4	550	300

* For light duty series this figure includes legs.



R-4030 Type Grate



R-4030 Type B Grate



R-4040 Type E Grate with Legs

DRAINAGE GRATES, FRAMES

R-4345 to R-4348 series, medium duty, square, beehive, for off roadway construction

Drains a substantial volume of surface water from all sides.

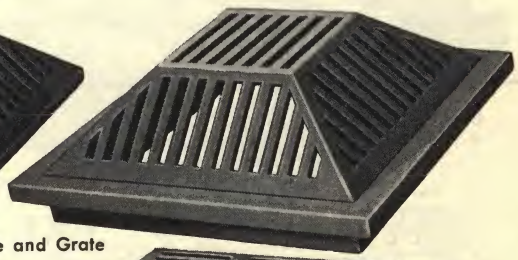
Specify: Catalog number; gray or ductile cast iron.

Catalog No.	Dimensions in Inches: Grate Overall	Grate top size	Frame Overall	Height Grate	Height Frame	Wt. Lb.
R-4345*	26x26	12x12		6¼		100
R-4346†	26x26	12x12	30x30	6¼	4	250
R-4347*	42x42	29x29		5½		350
R-4348†	38x38	29x29	49x49	5½	4	625

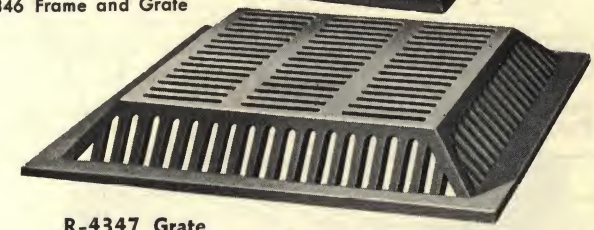
* Grate only
† Grate and frame



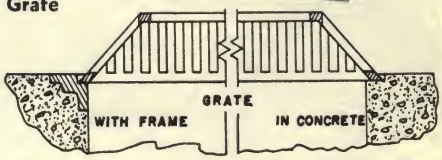
R-4345 Grate



R-4346 Frame and Grate



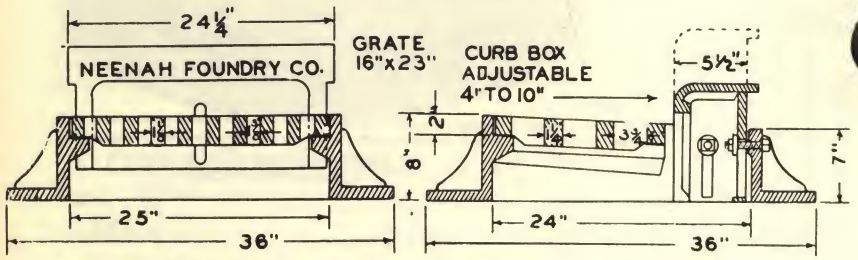
R-4347 Grate



CURB INLET FRAMES, GRATES, CURB BOXES

heavy duty, for built-up manholes

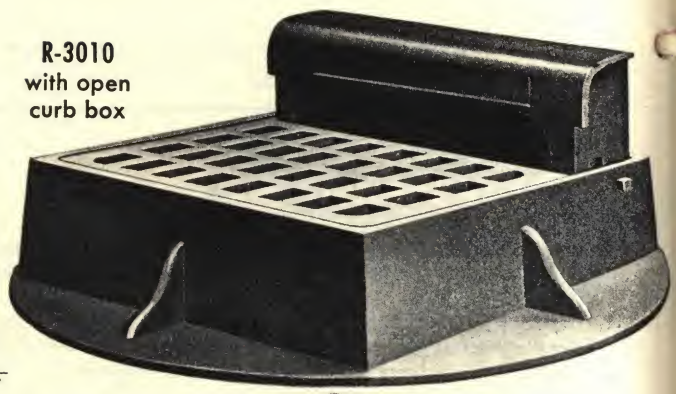
For castings on this page, specify catalog number; open or barred curb box (like R-3150); gray or ductile cast iron. For larger selection, write for complete catalog "R", third edition.

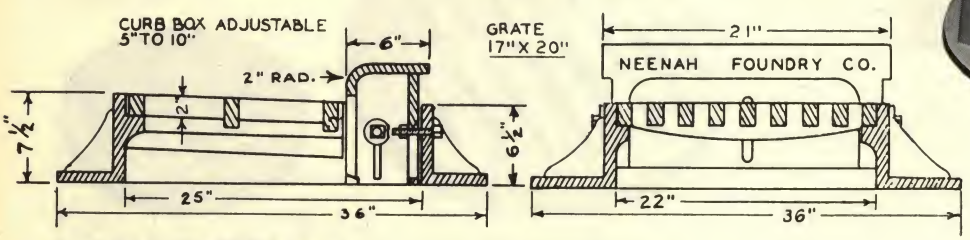


Frame and curb box 275 pounds; grate 125 pounds—total 400 pounds.

Specify: R-3040 for unit same as R-3010 but with base flange 30" square.

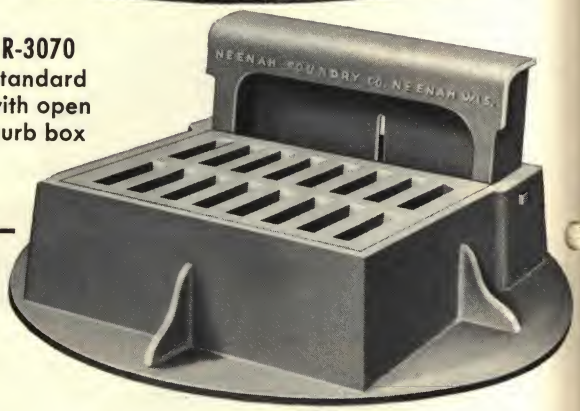
R-3010
with open
curb box

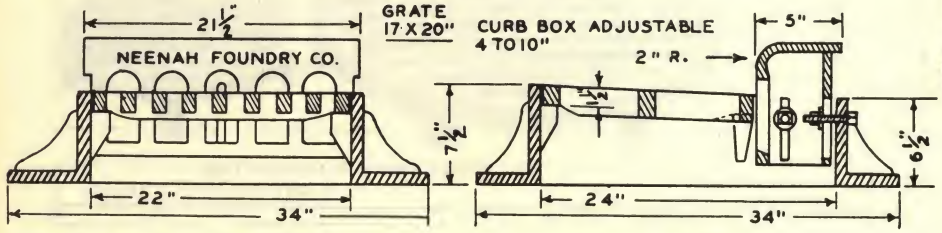




Grate openings 1¼" x 8½".
Frame and curb box 250 pounds; grate 100 pounds—total 300 pounds.

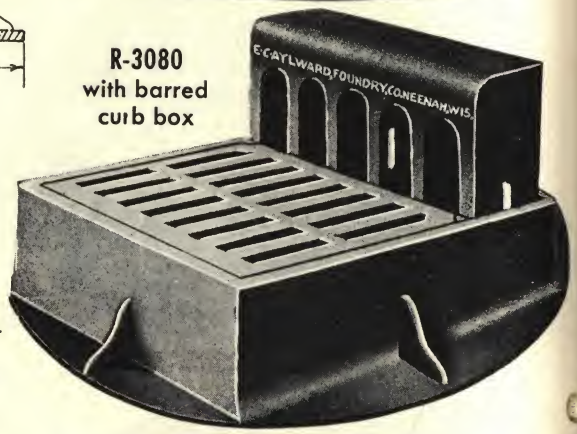
R-3070
standard
with open
curb box

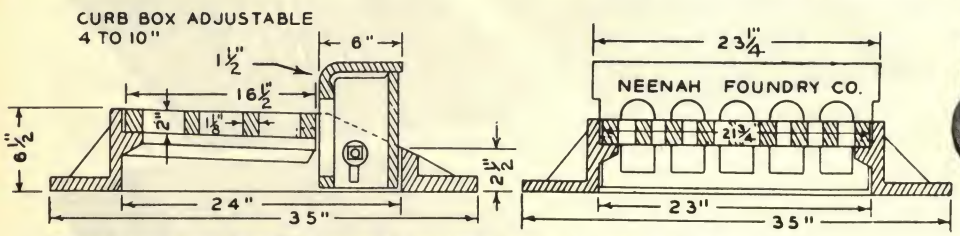




Frame and curb box 220 pounds; grate 80 pounds—total 300 pounds.

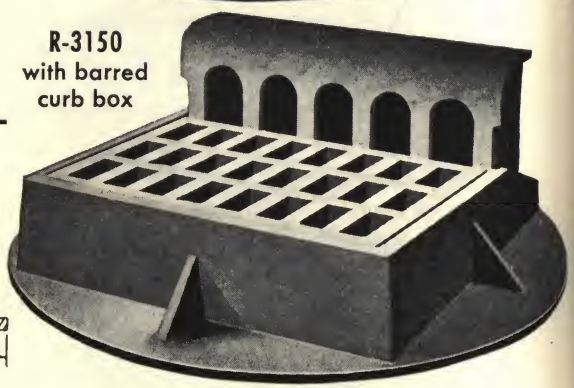
R-3080
with barred
curb box

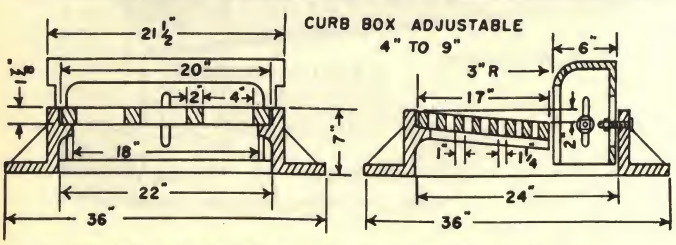




Frame and curb box 260 pounds; grate 90 pounds—total 350 pounds.
Furnished with lug anchors at curb section when specified.

R-3150
with barred
curb box





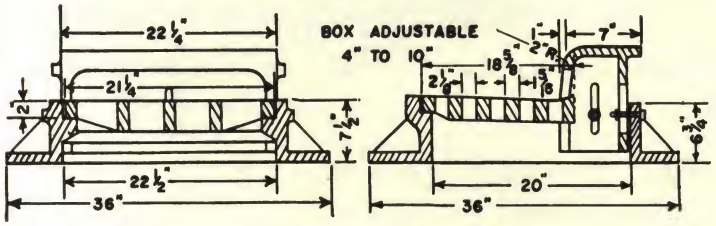
Total weight 400 pounds. Not available with barred curb box.

R-3235
standard
type B
with open
curb box

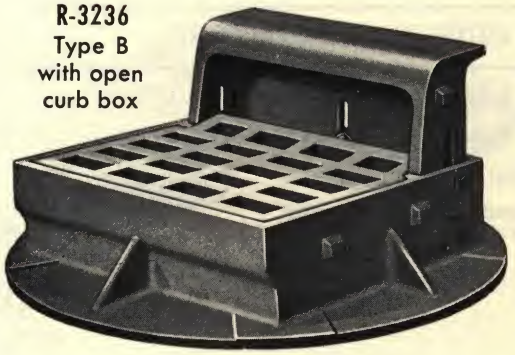


CURB INLET FRAMES, GRATES, CURB BOXES

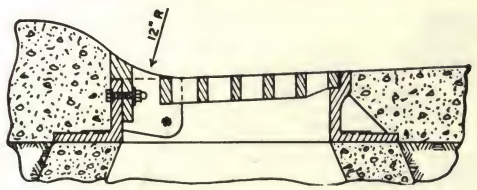
heavy duty, for built-up manholes



R-3236
Type B
with open
curb box

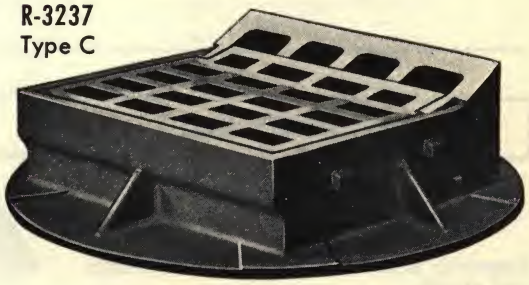


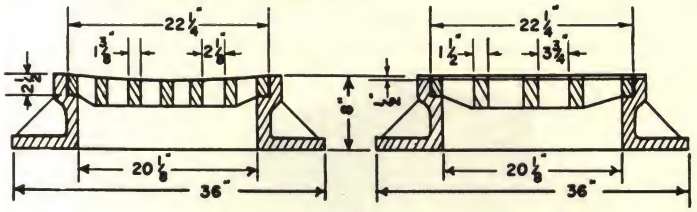
Note pavement anchors. Total weight 500 pounds.
Frames also furnished when specified, in two parts for convenience of curb and gutter forming ahead of paving. Write for detail R-3236-A.



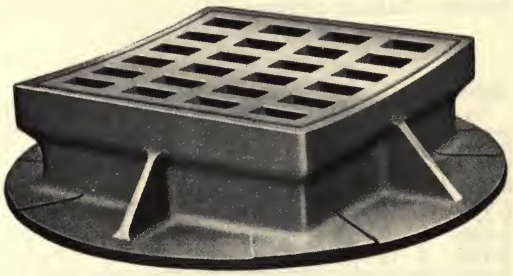
Total weight 475 pounds. Same as R-3236 except curb box for gutter or roll type curb. For roll type curb inlets, write for data sheets.

R-3237
Type C

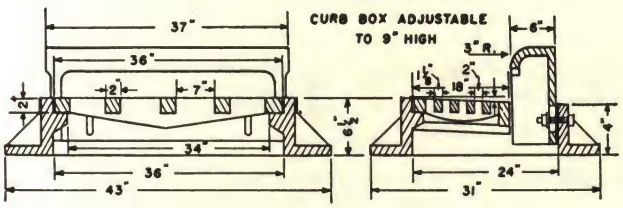




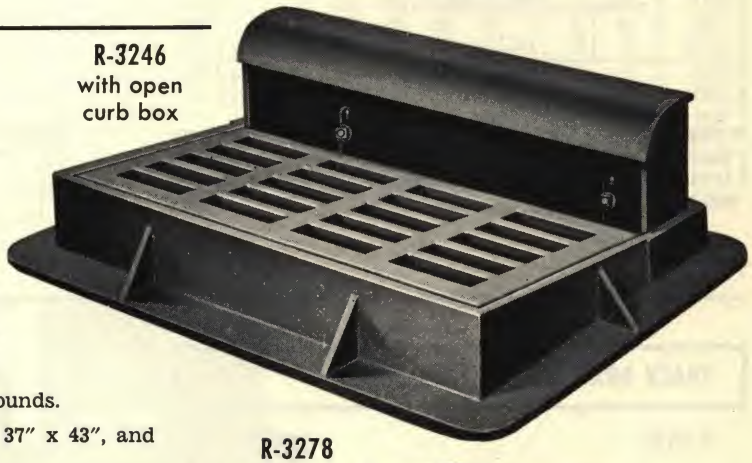
R-3238
Type D
concave grate
and frame



Inlet frame and concave grate. Total weight 485 pounds.

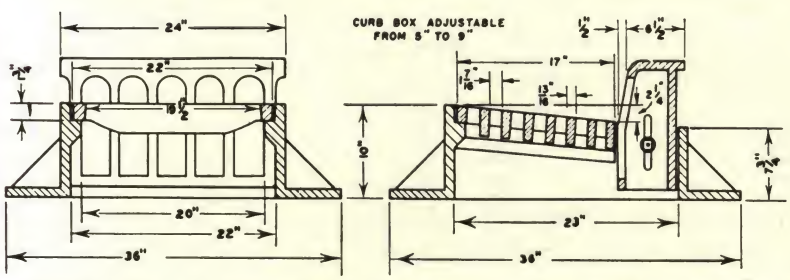


R-3246
with open
curb box

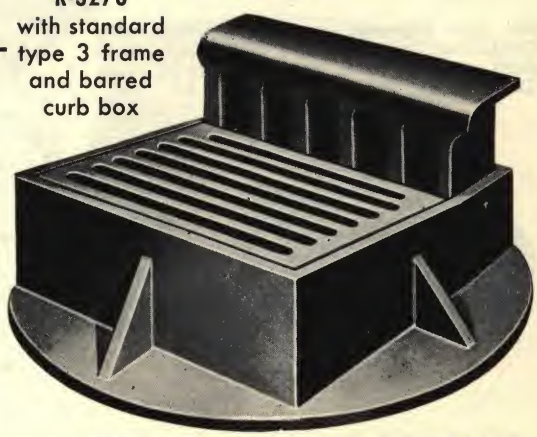


For maximum drainage. Grate has approximately 260 sq. in. of free openings, plus area of curb box. Furnished with barred curb box like R-3150 or with slotted grate like R-3278 if specified. Furnished with 3" curb face (illustrated) or if specified, with 1" or 2" radius, D and square face at curb.
Frame and curb box 325 pounds; grate 175 pounds—total 500 pounds.

R-3246-A—Same as R-3246 except with grate 24" x 36", flange 37" x 43", and curb box adjustable to 12". Total weight 675 pounds.



R-3278
with standard
type 3 frame
and barred
curb box



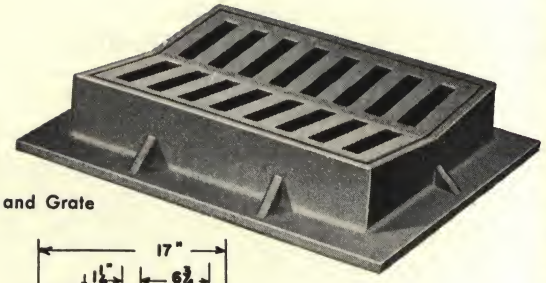
Standard type 3 frame, slotted grate. Total weight 500 lbs. For large drainage capacities, elimination of butting side flanges allows bolting combination of double or triple inlets. Write for information.

GUTTER INLET FRAMES, GRATES

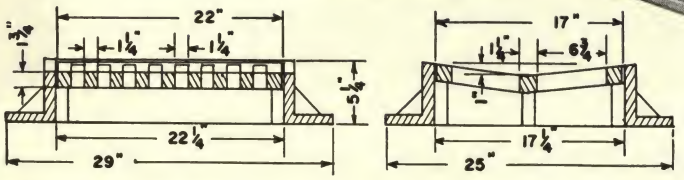
R-3205
heavy duty, concave

Total weight 275 pounds.

Specify: Catalog number.
For other concave castings, see p. 23 and 25.



R-3205 Frame and Grate



GUTTER INLET FRAMES, GRATES

R-3341 to R-3355 series,
heavy duty, concave

Especially adaptable as drains in driveways and gutters.

Specify: Catalog number.

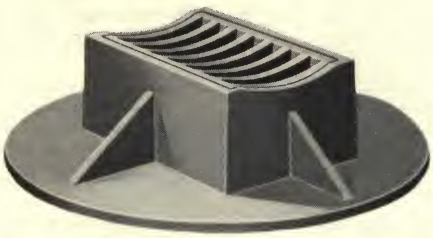


R-3346 Frame and Grate

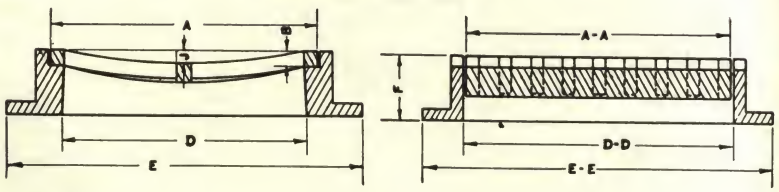
R-3350 Frame and Grate

Catalog No	Dimensions in Inches									Wt. Lb.
	A	AA	B	D	DD	E	EE	F	J	
R-3341	7½	11½	1½	8	11½	15½	19	6	¾	95
R-3342*	11½	15	1	10	15	18	23	9½	1	255
R-3343**	12½	13½	1	13	14	15	18	4	1¾	75
R-3344	13	24	1½	13	24	23	34	9½	1	280
R-3345	15	26	1½	12	26	20	34	6	1½	320
R-3346	15	38½	1¼	16	40	23	47	7½	1	300
R-3347†	22¼	22¼	2½	20⅛	20⅛	36	Dia.	8	½	485
R-3348	24	24	2	26	26	35	35	7	1	460
R-3350‡	28	28	1½	29	29	35	35	6	1¾	450
R-3352	32	32	1¾	32½	32½	42	42	7¾	1¾	625
R-3355	36	36	1¾	36½	36½	44½	44½	8¾	1¾	775

* Also available with 30" diameter base.
** Also available with flat grate.
† Standard detail D.
‡ Extra heavy construction. Also furnished with openings parallel with gutter.



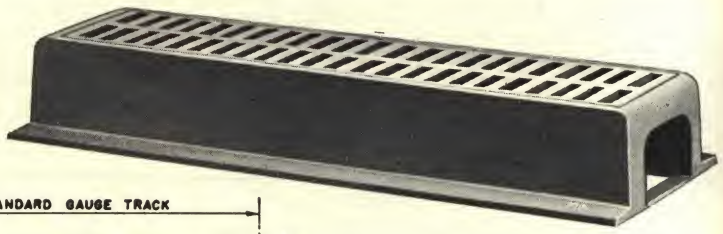
R-3342 Frame and Grate

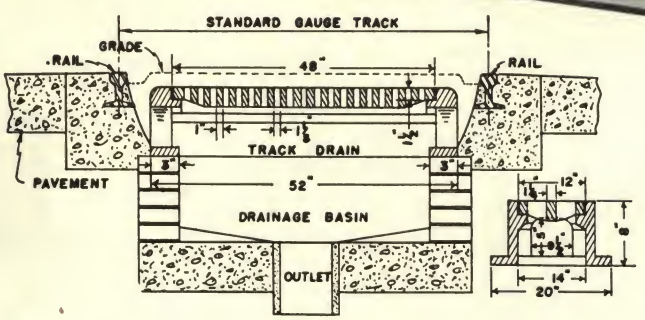


TRACK DRAIN GRATE AND FRAME

R-3420

For use between standard gauge rails. Grate cast in two parts. Note opening at each end of frame for drainage at rails. Total weight 500 pounds.





Typical Installation

GUTTER INLET FRAMES, GRATES

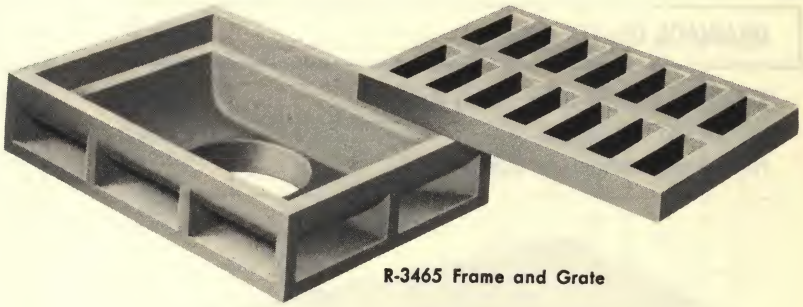
R-3465, heavy duty, with bottom pipe opening

R-3466, heavy duty, with bottom pipe opening and extended bottom spigot

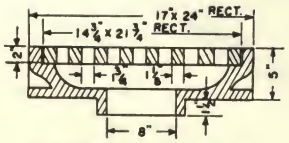
For subway, super-highway, elevated roadway drains.

Total weight—R-3465 300 pounds; R-3466 425 pounds.

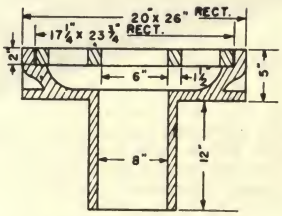
R-3466 can be used as a scupper since bottom spigot is extended. For other bridge and subway drains write for catalog "R", third edition.



R-3465 Frame and Grate



R-3465 Frame and Grate



R-3466 Frame and Grate

PIPE EXTENSIONS

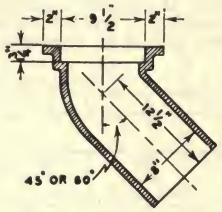
R-3467—45° bend
R-3468—60° bend

Hub of elbow is designed to fit spigot on casting R-3465.

Weight—100 pounds.



R-3468 Pipe Extension



R-3467-8 Pipe Extension

LAMPHOLE, MONUMENT OR METER COVERS, FRAMES

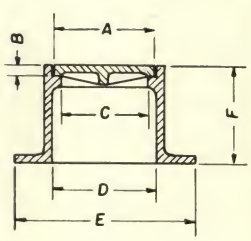
R-1970 to R-1978 series, heavy duty, round and square

Manufactured like a manhole cover in smaller size. Sometimes placed on riser between manholes to provide inspection cover.

Catalog No.	Dimensions in Inches A	B	C	D	E	F	Wt. Lb.
Round							
R-1970	7	2	5¾	9	13¼	7	45
R-1971	8	¾	6½	6½	9¾	10	55
R-1973	7½	½	6¾	9½	13¼	7	50
R-1974	9½	½	8	8	16	6½	90
R-1974-A	9	1	8	8	16	6½	85
R-1975	9½	½	8½	11½	20	11	100
R-1975-A	9¾	⅞	9	10⅜	15⅝	6	60
R-1976	11¼	1¼	10	13	20	8	110
Square							
R-1978	7x7	1	5x5	7x7	13x13	10	120
R-1978-A	7½x7½	⅞	6½x6½	11x11	17x17	15	177



R-1978

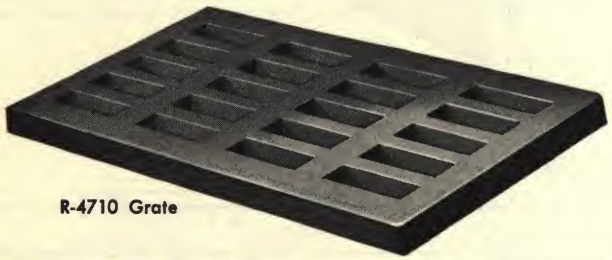




R-1976

DRAINAGE GRATES ONLY

R-4390 to R-4895 series, heavy duty, square and rectangular, for concrete manhole or slab



R-4710 Grate

Dimension drawing, grate types, angle frames or solid cover for sizes listed below are shown on p. 29. These grates may be adapted to trench frames (see p. 30, 31). All castings asphalt coated unless otherwise specified.

Specify: (for light or heavy duty drainage grates)
1. Standard sizes—by catalog number and either grate type or solid cover.
2. Replacement castings—give the exact size of catch basin opening in which grate will be used.
3. Special sizes—send sketch showing dimensions.
4. All castings—gray or ductile cast iron.

Also Specify if Needed: Angle frame R-4899 with or without cast iron anchors; trench frame (see p. 30, 31); combination of two or more grates or covers; coating other than asphalt.

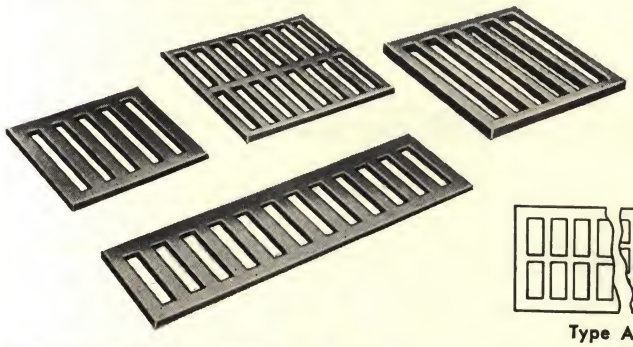
Catalog No.	Dimensions in Inches A	B	G	H	Wt. Lb.	Lid Type
Square						
R-4400	8x8	1¼	1x5	1	13	B
R-4401	8x8	1	3/16x3	3/8	11	A
R-4408	10¼x10¼	1	7/16x8¼	1	18	B
R-4440	12x12	1	1 5/16x10	1	20	B
R-4441	12x12	1	5/16x2	3/4	27	A
R-4441-A	12x12	2	5/16x4 3/8	3/4	48	A
R-4444	12x12	2	1 5/16x4	1	45	A
R-4511	14x14	1½	1 5/16x5 1/16	1 1/16	50	A
R-4550	15x15	1¼	3 1/16x3½	3/4	32	C
R-4552	16x16	1¼	1¼x6¼	1¼	75	A
R-4558	17 5/16x17 5/16	1½	1x5	½	52	C
R-4660	18x18	1½	3x4½	1¼	66	C
R-4661	18x18	1½	1¾x15½	3/4	80	B
R-4720	20x20	1¾	1¼x3½	1¼	115	C
R-4725	21x21	2	3x3	1	115	C
R-4760	22x22	1¾	3x5¾	1	105	C
R-4761	22x22	1¾	1½x20	7/8	130	D
R-4810	24x24	2	1¾x6	1¼	175	C
R-4820†	24x24	2	2x6	1¼	180	C
R-4830†	24x24	2	1x5	2	170	C
R-4831	24x24	1½	1x9¾	1	175	C
R-4832	24x24	1 5/8	1x4½	1	130	C
R-4833	26x26	2	2x7	1	210	A
R-4850	27x27	2	2½x7½	1	185	C
R-4851	27x27	2	2x10½	1½x2	205	A
R-4852	27x27	2	1½x5	1	200	C
R-4880	28x28	2	1½x7¾	1	190	C
R-4882	34x34	2	2x14½	1⅛	300	A
R-4884*	36x36	1¾	2x4	1½	350	C
R-4886*	39x39	1½	2x4½	1	325	C
R-4888*	42x42	1½	1½x5½	1	355	A
R-4889*	45x45	1½	2x6	1	460	C
Rectangular						
R-4390	6x24	1	3/4x4½	1	25	B
R-4391	6x45	1¼	3/4x4	1	66	B
R-4392	7¼x48	1 5/8	1½x4¼	1	90	B
R-4393	7 5/16x50	1¾	7/16x5½	3/4	95	C
R-4403	8x14	1	1½x2 5/8	½	20	A
R-4406	8x24	1¾	1 5/16x6	1	55	B
R-4406-A	9x24	3/8	3/16x6	½	30	B
R-4407	9¼x17¼	1	1¼x7¼	1	25	B
R-4407-A	9¾x24	1¼	1x7¼	1	50	B
R-4409	10x17¾	1½	1x3½	1	45	A
R-4410	10x29	1½	2x8	1	55	B
R-4412	10x32 5/8	1¾	1½x7½	1¼	85	B
R-4420	10x40	1⅛	1x8	1	65	C
R-4421	10x40	1⅛	1¼x8½	1	65	C
R-4422	10¼x33	1½	1 5/16x7¾	1¼	100	B
R-4423	10¼x48	1 5/8	1½x3 3/16	1	130	A
R-4424	10½x23 5/8	1¾	2x2	1	75	A
R-4425	10¾x19¾	1½	2x2	1	60	A

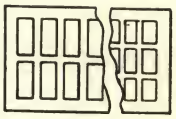
Catalog No.	Dimensions in Inches A	B	G	H	Wt. Lb.	Lid Type
Rectangular (cont'd)						
R-4430	11x20	2	1¼x9	1	55	B
R-4434	11½x45	2	5/16x6 5/16	3/4	130	C
R-4435	11¾x48½	1¾	1x4 3/8	1	140	C
R-4450	12x24	1¾	1x4½	1	75	A
R-4451	12x24	2	1½x3¾	1	95	C
R-4452	12x24½	2	1½x9	1	90	B
R-4454	12x26	1½	½x11½	½	65	C
R-4460	12x30	2	1¼x4	1	130	A
R-4462	12x35¾	1½	¾x9	1	120	B
R-4470	12x48	1¾	1x4½	1	135	A
R-4475	12x55¾	2	1 5/16x9	2	230	B
R-4480	12½x13½	1¾	1½x10½	1	45	B
R-4481	12 7/16x13	2	1½x9½	1	55	B
R-4490	13x23	1⅛	2x5	1	50	A
R-4520	14x19	1½	2¼x5	1	60	A
R-4521	14x20	1½	2¼x5 3/16	1	50	C
R-4525	14x24	2	1x5½	1	100	A
R-4525-A	14x24	2	1 3/16x10	1	100	C
R-4530	14½x22	2	1½x5½	1¼	90	A
R-4540	14½x26½	2	2¼x4	1	115	C
R-4544	14½x37¾	1¾	2x5 3/8	1¼	140	A
R-4548	15x20½	1½	2x2	3/4	65	A
R-4560	15x22	2	1½x13	1	95	B
R-4570	15x23	2	1¼x5	1 3/8	100	A
R-4573	15x30	2½	1½x5½	1	185	A
R-4579	15¼x23	1 5/8	1 3/8x5¼	1 3/8	100	A
R-4580	15½x19	2	1½x12	1	100	B
R-4585	15½x39	1¾	1¼x5¼	1¼	145	A
R-4586	15¾x36	1¾	1½x5¼	1 3/8	165	A
R-4590	16x20	2	1¼x12	1	100	B
R-4600	16x23	2	1¼x3¾	1	100	A
R-4601	16x23	2	1½x4 3/8	1	120	A
R-4602	16x23	2	1½x4	1	125	A
R-4604	16x24	1½	2x4	7/8	90	C
R-4604-A	16x24	2	1 3/4x3 1/16	1	100	A
R-4604-B	16x24	1½	1 5/8x6 3/4	1	90	A
R-4605	16x53	1¾	1½x12	1¼	225	B
R-4609	16½x21	2	1½x4	1	105	A
R-4610	16½x22	1¾	1½x4	1	90	A
R-4620	17x19	2	1¼x4¼	1⅛	90	A
R-4630	17x20	1½	1¼x6½	1	95	C
R-4632	17x21	2	1 5/8x8¾	1	105	C
R-4640	17x21½	1¾	2½x4¼	1	80	A
R-4648	17¼x20½	1¾	1¾x4½	1	100	A
R-4651	17¼x24	2	2x6	1⅛	115	A
R-4652	17¾x29¾	2	1½x4½	1⅜	155	A
R-4655	18x15½	2	2x5	1	90	A
R-4658	18x23¾	2	2x5¾	1	120	C
R-4658-A	18x24	¾	2x4¼	1⅛	100	A
R-4659	18x24	2	1½x13½	1½	170	B
R-4670	18x24	1½	1½x10	1¼	100	C
R-4679	18x25	2	2x6	1	145	C
R-4681	18x25	1½	2¾x7	1¼	110	C
R-4683	18x25	2	2x4	1	150	C
R-4689	18x27¼	2	2x6¾	1	150	C
R-4690	18x27½	2	1x14	1½	170	B
R-4698	18x36	1¾	2x4	1½	180	C
R-4700	18x36	1¾	2x4	1½	210	C
R-4710	18x36	2	1¾x6½	1⅜	220	C
R-4711	18x39	2	1¼x5½	1¼	210	C
R-4715	18x69	1½	¾x16	¾	310	B
R-4717	18¼x32¾	2½	1½x7½	1 5/8	300	C
R-4718	18¾x36¾	2	2x8	1	220	A
R-4730	19½x32	1½	2x5	1	110	A
R-4731	19½x39	1½	2x4½	1	155	A
R-4740	20x28½	2	1¾x8	1	210	C
R-4750	20x30	2	1¾x6	1	160	C
R-4751	20½x27	2	1¾x5½	1	140	C
R-4752	20½x36	1⅞	1 5/8x5¾	1⅛	200	C
R-4752-A	20¾x31 5/8	1½	2x4½	¾	135	C
R-4755-A	21x33	3	1½x18	1 5/8	300	B
R-4755-B	21x42	1½	1½x5½	1	175	C
R-4757	21¾x41	1¾	1¾x1¾	1	235	A
R-4759	22x23	1¾	1½x6	1	130	C
R-4759-A	22x23	1¾	1x8½	1	125	C
R-4759-B	22x23	2	½x21	½	150	B
R-4780	22x37	2	2x8	1	195	C
R-4781	22x48	2½	1 5/16x5 3/8	1¼	375	C
R-4790	22½x28½	1½	1¼x17	1	140	B
R-4795	22½x45	1½	2x6	1	200	A
R-4821	23¾x36	1¾	1x4 5/16	1	225	A
R-4825	24x30	1½	1½x4¼	1¼	160	C
R-4840	24x36	2	2x4¾	1	220	C
R-4841	24x36	2	2 7/16x4½	1	220	C
R-4842	24x36	2	2x4¾	1	250	C
R-4843	24x36	1¾	1¾x6	1	230	A
R-4854	25x51½	1½	1x6 3/16	1	475	A
R-4855	26x30	2	1½x5	1¼	275	A
R-4856	26x32 3/16	4	3 3/16x3 5/16	7/8	450	C
R-4860	27x44	2½	1¾x8	1½	630	C
R-4890	28x37	2	2x8	1	360	C
R-4891*	30x48	1½	1½x4¼	1¼	325	A
R-4893**	30x78	2	1½x5	1¼	690	C
R-4894	33x36	2	1½x6½	1¼	330	C
R-4895*	36x66	2	1½x6½	1¼	660	A

†Convex. *Made in two pieces. **Made in three pieces.

DRAINAGE GRATES ONLY

R-4402-A to R-4892 series, light duty, square and rectangular for concrete manhole or slab

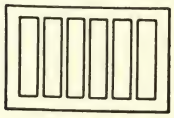




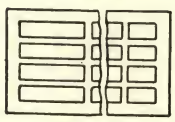
Type A

Used in walkways, buildings, subway and yard drainage wherever light weight grates are adaptable. These grates may be adapted to trench frames (see p. 30, 31). All castings asphalt coated unless otherwise specified.

Specify: As instructed on p. 28.



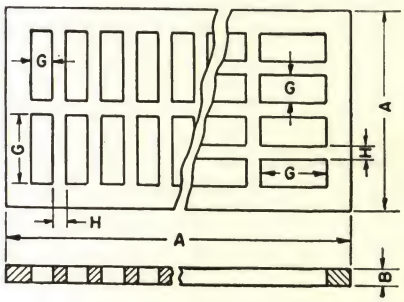
Type B



Type C

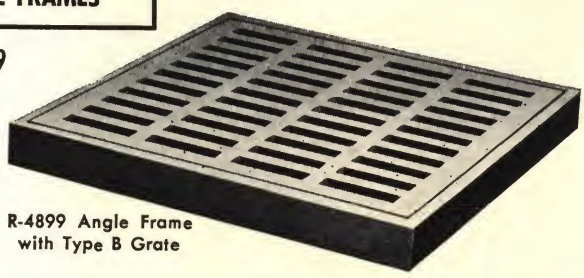


Type D



ANGLE FRAMES

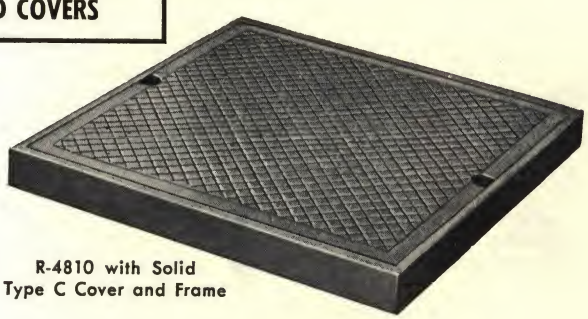
R-4899



R-4899 Angle Frame with Type B Grate

Angle frame shown can be furnished with any grate on p. 28 and 29 in single or combination. Frame can be supplied with cast iron anchors. To specify, see p. 28.

SOLID COVERS



R-4810 with Solid Type C Cover and Frame

Catalog No.	Dimensions in Inches A	B	G	H	Wt. Lb.	Lid Type
Square						
R-4402-A	6x6	5/8	1/2x4 3/4	1/2	8	B
R-4402-B	7x7	5/8	1/2x5 3/4	1/2	5	B
R-4402-C	8 5/8x8 5/8	5/8	3/8x7	1/2	8	B
R-4404	9x9	5/8	1/2x7 1/2	1/2	10	B
R-4406-B	10x10	5/8	1/2x8 1/2	1/2	11	B
R-4442	12x12	3/4	1x4 1/2	1	17	A
R-4445	13x13	5/8	1x5 3/8	5/8	15	A
R-4500	14x14	1	2 1/4x5 1/2	3/4	23	A
R-4510	14x14	1	1 1/2x12	3/4	24	B
R-4550-A	16x16	1/2	1x7	1/2	18	A
R-4551	18x18	5/8	1x5	1/2	27	A
R-4721	20x20	1	2x2	1	72	C
R-4726	22x22	3/4	7/8x4 3/8	7/8	72	A
R-4834	24x24	1	1 5/8x3 5/8	1	88	A
R-4848	25 1/2x25 1/2	1	1/2x5 1/4	5/8	75	A
R-4849	26x26	1	1/2x5 1/4	5/8	75	A
R-4870	27 1/2x27 1/2	1	2 1/4x25	1	73	B
R-4871	27 1/2x27 1/2	1	2x24	1	125	B
R-4872	30x30	1 1/4	1 3/8x29	3/8	85	B
Rectangular						
R-4394	5x8	1/2	1/2x3 1/2	1/2	4	B
R-4395	7x9	5/8	1/2x5 3/4	1/2	6	B
R-4396	7x24	1/2	5/8x5	1	17	B
R-4397	8x10	5/8	1 1/4x6	1	10	B
R-4398	8x12	5/8	5/8x6	1	11	B
R-4405	8x20	3/4	1/2x6 1/2	1/2	20	B
R-4405-2	9 1/2x13	3/8	3/4x8	1/4	27	B
R-4414	10x34	3/4	1x7 1/2	1	45	B
R-4421-A	10x50	1/2	1 1/4x1 1/4	1/2	38	A
R-4426	10 1/4x51 1/2	1	3/4x4 3/4	1/2	78	C
R-4432	11 1/8x47 5/8	3/4	7/8x4 1/4	7/8	75	C
R-4433	11 1/4x17 1/4	1/2	7/8x5 1/2	5/8	17	C
R-4436	12x15	3/4	3/4x13 1/2	3/4	21	D
R-4437	12x24	3/4	3/4x10	3/4	38	B
R-4439	12x34	1	3/4x10 1/4	3/4	59	B
R-4453	12x36	3/4	1x10	1	61	B
R-4468	12x48	7/8	1x4 3/8	1	97	A
R-4494	13 3/4x25 3/4	1	1 3/4x11 3/16	1 1/4	90	B
R-4495	14x14 3/8	3/4	1x12 5/8	5/8	14	B
R-4496	14x16	3/4	1x5	1	32	A
R-4522	14x20	1	1x12	1	32	B
R-4524	14x24	1	2 1/2x4 3/4	1	62	A
R-4526	14x48	1	1x5 1/2	1	108	A
R-4527	14 1/8x30 5/8	1	1 3/8x12 1/8	7/8	51	B
R-4575	15x36	1	13/16x6 7/16	3/4	77	A
R-4576	15 1/2x23	5/8	3/4x6	3/4	39	A
R-4603	16x24	1	1 5/8x5 1/2	1	55	C
R-4605-A	16 1/4x19 1/2	1 1/2	1 1/4x6 1/4	1	65	A
R-4607	16 1/2x19 3/4	1	1 1/4x6 1/4	1	50	A
R-4613	16 3/4x19 3/4	1	1 5/8x4	1	55	A
R-4642	17x22	3/4	1 3/8x16	5/8	40	B
R-4650	17 1/4x23	1	2x4	1 1/2	107	A
R-4653	18x39	1 1/4	1x7	1 1/4	154	A
R-4654	18x46	1	1x7	1 1/4	146	A
R-4656	20x48	1	1x18	3/4	128	B
R-4657	20x56	1	1x18	3/4	153	B
R-4753	20 5/8x36 1/2	1	1 1/8x14 3/4	1	121	C
R-4755	21x50 1/4	1/2	7/8x5 5/8	5/8	185	A
R-4770	22x32	1	1 3/4x14	1 1/8	124	C
R-4800	23x29	1	1x17	1	146	B
R-4835	24x46	1 1/8	1 1/2x5 1/2	1	195	C
R-4836	25x48	1 1/8	1 1/2x5 1/2	1	206	C
R-4844	26x41	3/4	1 1/4x5	1	126	A
R-4845	26x49 1/2	1	1 1/4x11 1/4	3/4	178	A
R-4892*	30x60	1 1/4	1 3/8x29	3/8	156	B

*Grate in two pieces.

As shown at the left, solid covers are furnished in any of the sizes listed on p. 28, 29 with or without angle frames if specified. For additional information write for complete catalog "R" third edition.

To specify, see p. 28.



GRATED, SOLID OR PERFORATED COVERS, TRENCH FRAMES

R-4990 series, heavy duty

Used to drain wide surface areas such as loading ramps, truck docks, subway construction, highway underpass, intersecting elevated highways, airport hangar doors, airport hangar floors, etc.

Frames shown can be adapted for use with any standard heavy duty grate on p. 29. Dimensions can be varied as specified.

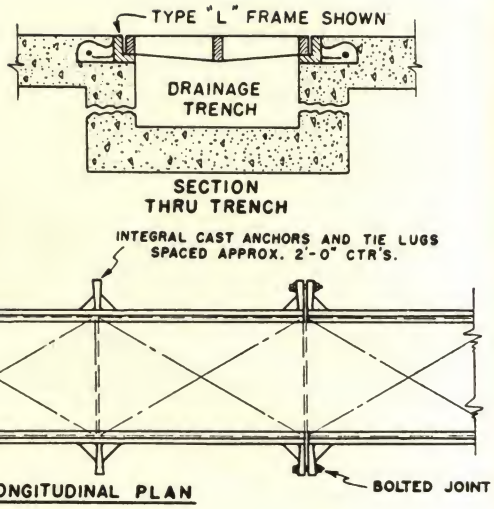
Specify:

1. Light or heavy duty.
2. Frame type. (All frames made in approximate 3 ft. sections, bolted at tie lugs.)
3. If frames require end pieces.
4. Type of cover (grated, solid, perforated).
5. If cover is to be made in other than 2 ft. sections.
6. If bolted cover required, type of bolt joint (single or double), (otherwise unbolted cover furnished).
7. Width and length of trench opening. (Assemblies built in any width or length.)
8. If any special type or size is required (such as irregular pattern), and if shop drawing is needed (it is furnished without obligation).
9. If other than asphalt coating required.
10. If special crown assembly is required (otherwise structure furnished flat).
11. If horizontal bearing surfaces are to be machined.
12. Gray or ductile cast iron.

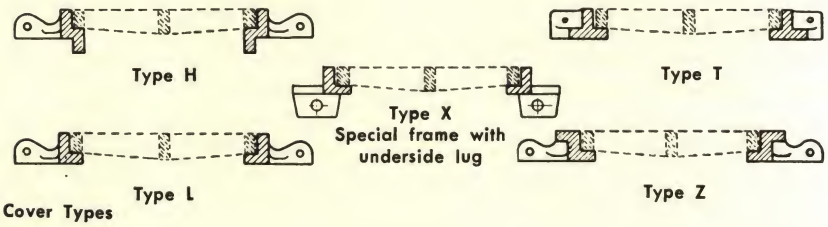
Standard Cover Dimensions

Catalog No.	Dimensions in Inches		
	A	B	C
R-4990-A	8	1¾	6
R-4990-B	10	1¾	8
R-4990-C	12	1¾	10
R-4990-D	14	2	12
R-4990-E	17	2	15
R-4990-F	20	2	18
R-4990-G	23	2	21
R-4990-H	26	2	24
R-4990-J	30	2¼	27
R-4990-K	33	2¼	30
R-4990-L	36	2½	33
R-4990-M	39	2½	36
R-4990-N	45	3	42
R-4990-O	51	3	48

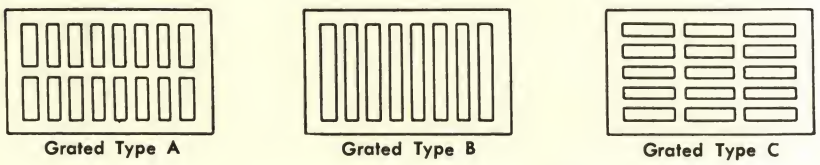
Typical Installation

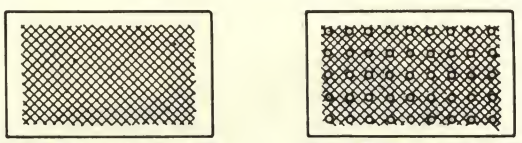


Standard Frame Types

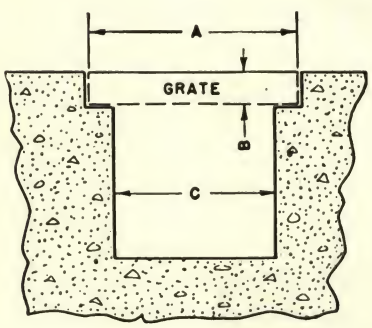


Cover Types

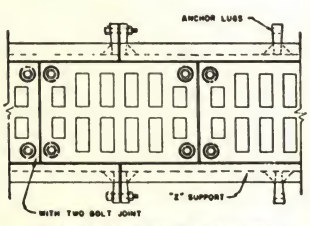




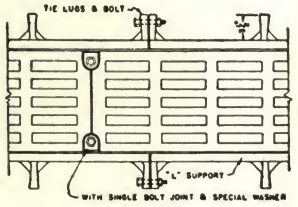
Cover Dimensions

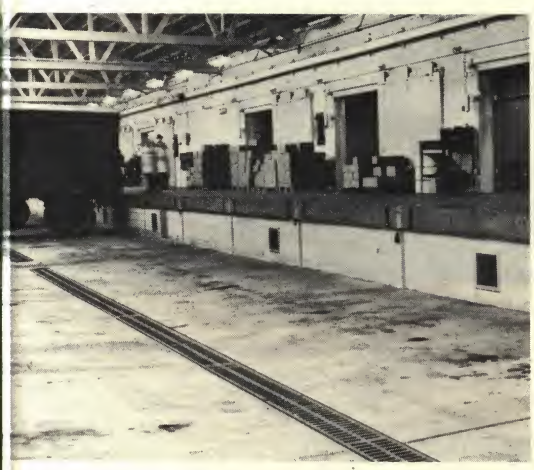


Bolted Type Frames and Grates



Type of frame or grated cover opening optional. Furnished according to drainage requirements.





GRATED, SOLID OR PERFORATED COVERS, TRENCH FRAMES

R-4991 series, light duty

Used in garages, bottling plants, service stations, laundries, packing houses, warehouses, industrial buildings, driveways and other similar locations where large free drainage area is required.

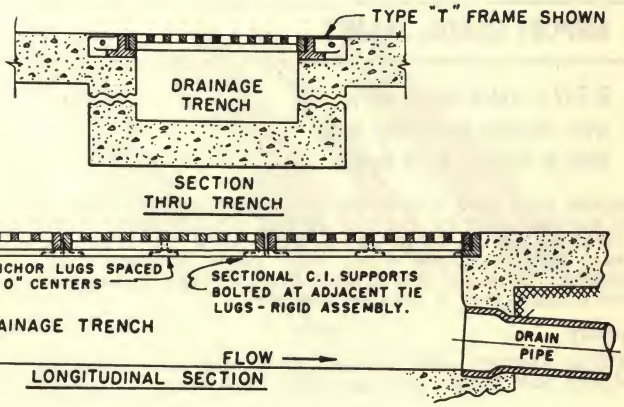
Frames shown can be adapted for use with any standard light duty grate on p. 28. Dimensions can be varied as specified.

To specify, see p. 30.

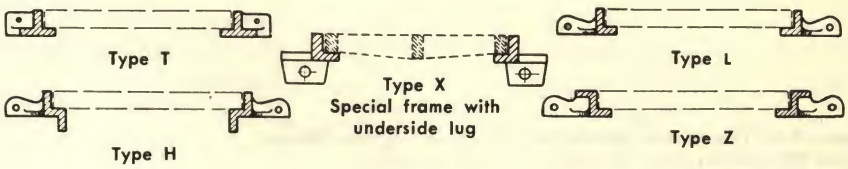
Standard Cover Dimensions

Catalog No.	Dimensions in Inches		
	A	B	C
R-4991-A	8	1¼	6
R-4991-B	10	1¼	8
R-4991-C	12	1¼	10
R-4991-D	14	1¼	12
R-4991-E	17	1¼	15
R-4991-F	20	1¼	18
R-4991-G	23	1½	21
R-4991-H	26	1½	24
R-4991-J	29	1½	27
R-4991-K	32	1¾	30
R-4991-L	35	1¾	33
R-4991-M	38	1¾	36
R-4991-N	44	2	42
R-4991-O	50	2	48

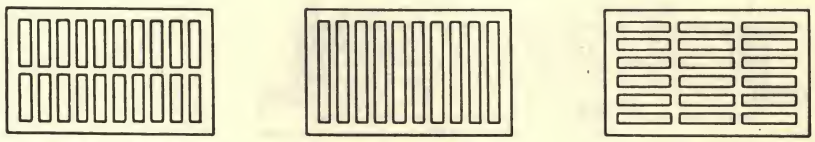
Typical Installation



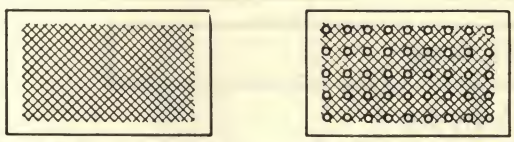
Standard Frame Types



Cover Types

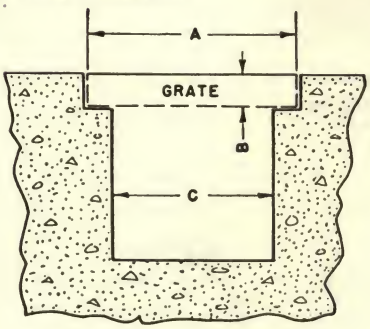


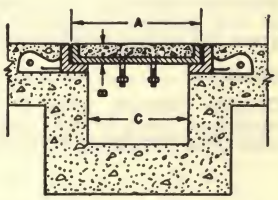
Grated Type A — Grated Type B — Grated Type C



Solid Checkered Type D — Solid Perforated Type E

Cover Dimensions



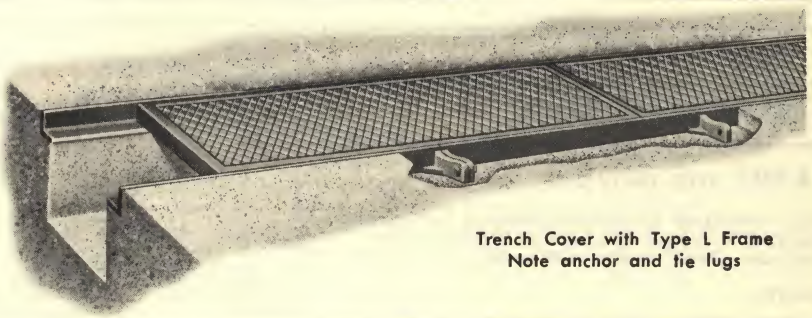


Solid Type F

Recommended for covers filled with concrete, asphalt or terrazzo. Rigidity of cast iron prevents cracking of fill.

Construction Procedures

Because of varying construction procedures, we do not recommend any special type of correct placement forming although this may be accomplished by blocking, grouting, steel strapping tool or bolting to the forms. However, for best results we do suggest frames be accurately placed, both in elevation and width, and then firmly secured to prevent movement in pouring concrete.



Trench Cover with Type L Frame
Note anchor and tie lugs

AIRPORT GRATES, FRAMES

R-3475, extra heavy duty, with straight or sloping bars, with or without base flange

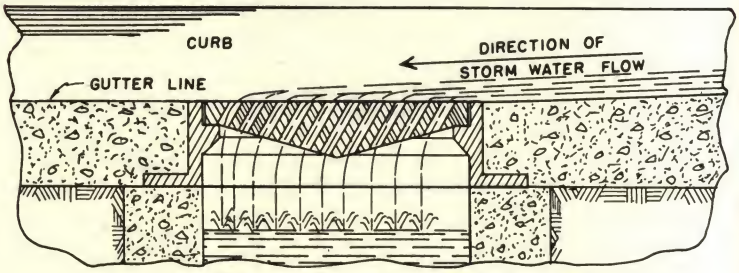
Sloping bars used where maximum drainage is required. An excellent casting for hilly streets, since it will receive a large volume of storm water. Tests show this design to create least resistance when water passes through grate openings. Capacity 30% greater than average when grate with straight bars is used in same area.

Specify:

Catalog number; with straight or sloping bars; with or without base flange; gray or ductile cast iron.

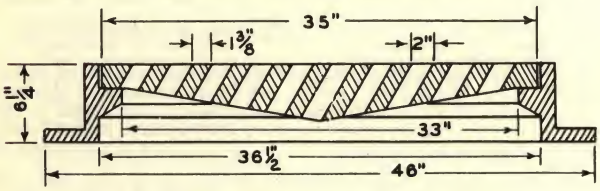


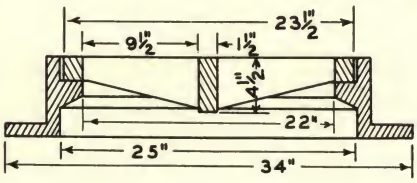
R-3475 with Sloping Bars and Base Flange

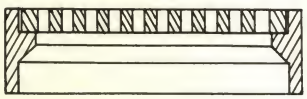


Proper Placing of Grate and Frame to Grade

Below: R-3475 Grate with Sloping Bars and Frame with Base Flange. Frame 285 pounds; grate 250 pounds—total 535 pounds.







R-3475 Grate with Straight Bars and Frame without Base Flange

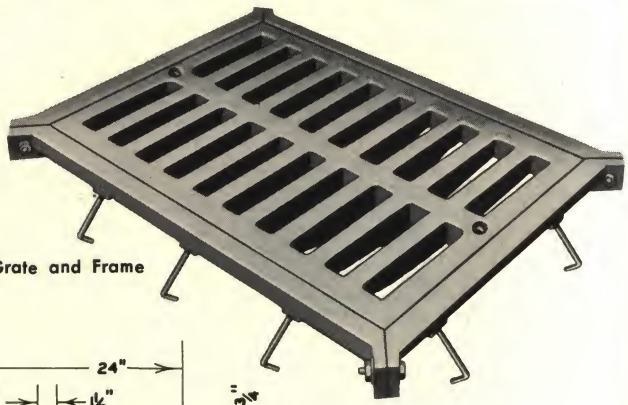
AIRPORT GRATES, FRAMES

R-3475-A, extra heavy duty

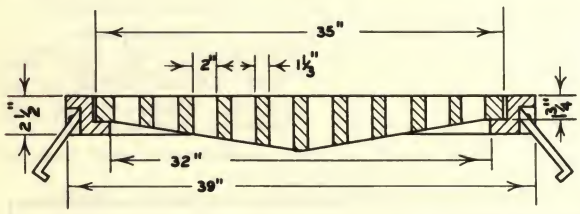
U.S. Government standard. Grate has free area of approximately 390 sq. in. Frame is made in four pieces bolted at corners. For areas requiring exceptionally high drainage capacity, unit furnished in multiples consisting of any number of R-3475-A grating. Frame 150 pounds; grate 250 pounds—total 400 pounds.

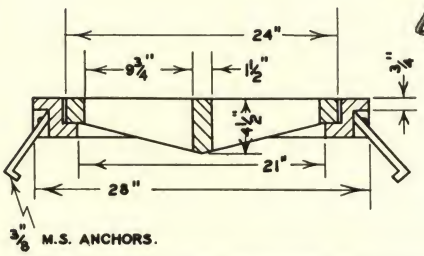
Specify:

Catalog number; gray or ductile cast iron; if countersunk hex. head bronze cap screws required (optional); if unit to be furnished in multiples.



R-3475-A Grate and Frame





AIRPORT GRATES, FRAMES

R-3485, extra heavy duty

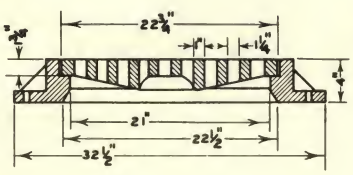
With machined horizontal bearing surfaces. Designed to sustain live load of 100,000 pounds minimum. Total weight 400 pounds.

Specify:

Catalog number; gray or ductile cast iron; anchor bolt holes in flange if required; with solid cover instead of grate if required.

R-3485 Grate and Frame





CAST IRON GROOVES

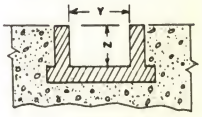
R-7500 series, sewage disposal castings for stop planks and logs

Stop log and stop plate grooves are used for a variety of purposes in sewage disposal plant layout. We have many standard and special patterns covering a wide range of uses.

Specify:

Type of groove (otherwise Type A supplied); size and length (grooves cut to sizes as ordered); or diagram of channel construction.

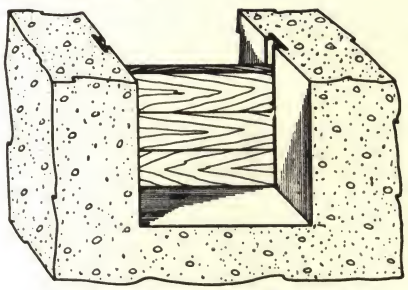
Dimensions in Inches



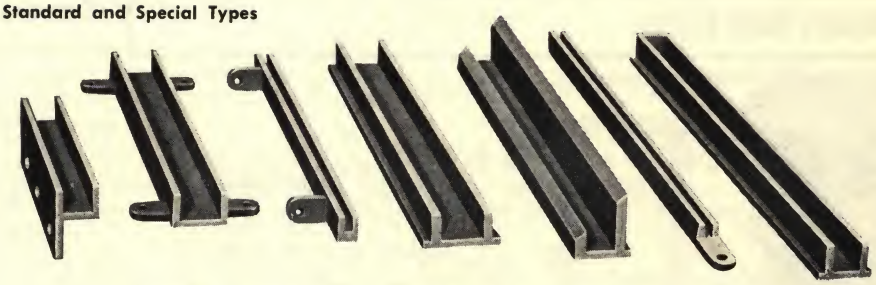
SECTION

Y	Z
1½	1
1¾	1¼
2	1½
2¼	1¾
2½	2
3	2½
3½	3
4	4
5	5
6	6
7	
8	
10	

Typical Channel

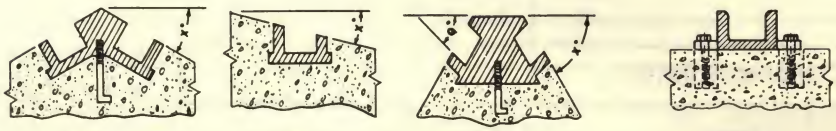

Note cast iron grooves in concrete

Standard and Special Types

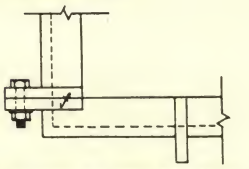




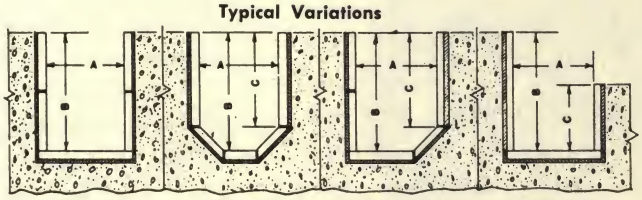




Detail at Joint



Typical Variations



TYPICAL VARIATIONS IN STOP LOG CHANNEL CONST.

CAST IRON GROOVES, STOP PLATES

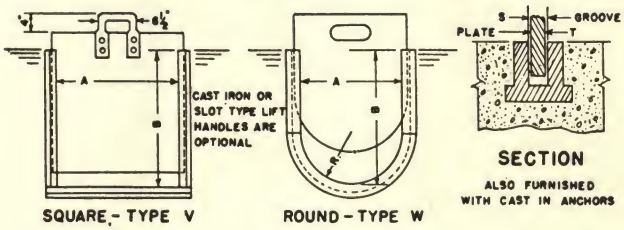
R-7501 series

Used in sewage disposal plant layouts. Aluminum and steel plates also supplied, when specified. Grooves supplied in standard sections of 3'-0" maximum, or fraction thereof.

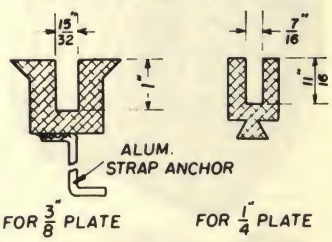
Specify:

Catalog number; gray or ductile cast iron, or aluminum groove; aluminum, steel, or gray or ductile cast iron plates; Type V or W; width and depth of slot as shown as S and Z; clear opening shown as A and B. Also if grooves and plates required, so state, advising number of groove assemblies and plates required. If grooves only required, specify grooves **only.** If plates only required, specify plates **only,** AND advise material plates are to be fabricated from. If castings shown do not meet your specifications, send a detailed sketch including dimensions and we will quote prices.

Shear Gate and Stop Plates with Cast Iron Grooves



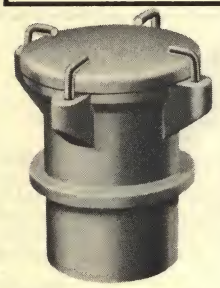
Aluminum Extruded Grooves



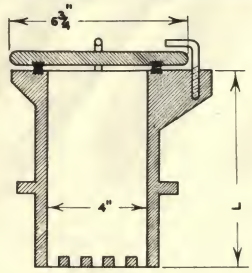
Catalog No.	Type V Dimensions in Inches A*	B*	S	T	Catalog No.	Type W† Dimensions in Inches A	R	S	T
R-7501-AV			¼	⅛	R-7501-AW	15	7½	¼	⅛
R-7501-BV			⅜	¼	R-7501-BW	18	9	⅜	¼
R-7501-CV			½	⅜	R-7501-CW	24	12	½	⅜
R-7501-DV			⅝	½	R-7501-DW	30	15	½	⅜
R-7501-EV			¾	⅝	R-7501-EW	36	18	⅝	½
R-7501-FV			⅞	¾	R-7501-FW	48	24	⅝	½

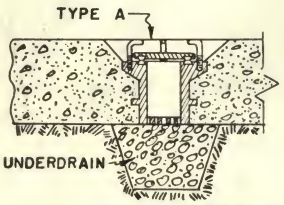
*Any size ordered.
†Dimension B as specified. Other specials on request.

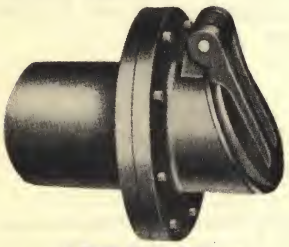
PRESSURE RELIEF VALVES



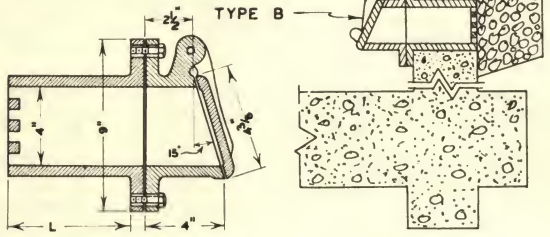
R-5001 Type A Valve







R-5002 Type B Valve



R-5001 series, type A • R-5002 series, type B for sewage disposal or concrete tanks

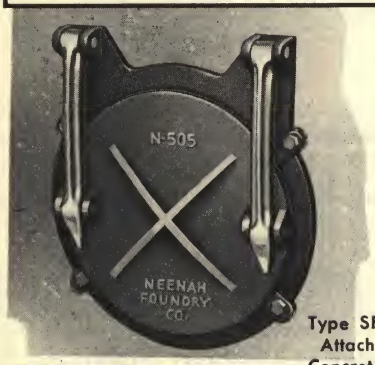
Outside water pressure forces relief valve open and allows water to enter tank, equalizing inside and outside pressure and preventing tanks from floating. Valve gate prevents solids from entering the valve body. Note Type B valve for tank side can be removed from wall for repair or remounting. It requires less excavation during construction.

Specify:

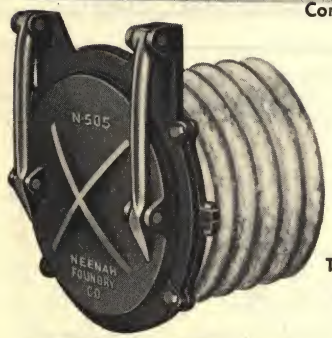
1. Catalog number; type; gray or ductile cast iron.
2. For R-5001 series, if bronze mounting or solid bronze cover required, (otherwise furnished with lead mounting).
3. For R-5002 series, if cast iron or solid bronze lid and bronze hinge pin required. (Also available with lead or bronze mounting).
4. Length (valves supplied in any length to meet concrete tank floor or wall thickness).

Catalog No.	Type	Dimensions in Inches			
		Inside Dia.	Flange Dia.	Lid Dia.	Length "L"
R-5001-4	A	4	6	6¾	Variable to fit slab thickness
R-5001-6	A	6	8¼	8½	
R-5002-4	B	4	9	5	
R-5002-6	B	6	11	7½	

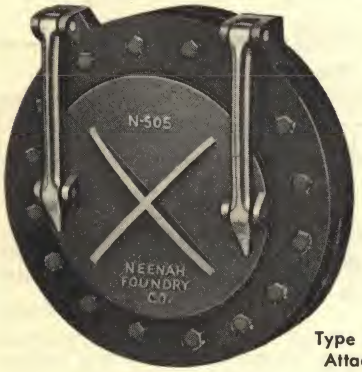
AUTOMATIC DRAINAGE GATES



Type SF Gate Attached to Concrete Wall



Type CF Gate Attached to Corrugated Iron Pipe



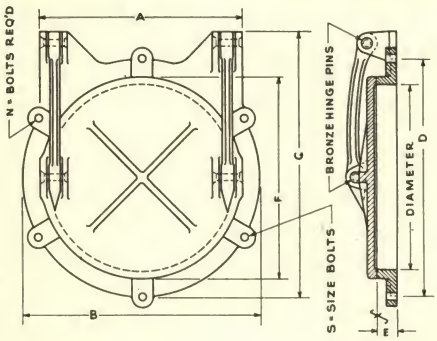
Type FF Gate Attached to Flanged Metal Pipe

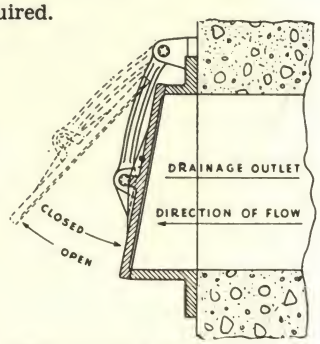
R-5050 series, types SF, CF and FF with vertical or off-vertical closure

Used on drainage outlets where automatic stoppage of backwater pressure is necessary such as flood control, outfall gates, intercepting sewers, etc. Asphalt coated gates are made of cast iron including the arms. All moving parts operate on bronze hinge pins. Bearing surfaces are machined, assuring true fit. The cover is hung with arms at the outer edge near the center of gravity, resulting in sensitive operation and accurate seating. This construction provides a maximum resistance to corrosion and a continued efficient operation, reducing loss of head to a minimum.

Specify:

1. Catalog number; type; gray or ductile cast iron; standard or special. (Standard gates furnished with vertical closure for maximum ease of operation. Special gates furnished off-vertical on any degree, the regular off-vertical being 1" to each 6" diameter. Specify degree.
2. If small diameter with spigot end for caulking required.
3. If covers are to be aluminum instead of cast iron.





Off-vertical Gate attached to concrete head wall.

Dimensions in Inches

Diameter	A	B	C	D	E	F	N	S
6	9¼	11	13	11	1⅛	9¼	4	⅝
8	9¼	11	13	11	1⅛	9¼	4	⅝
10	11¼	13½	15½	13½	1⅛	11¼	4	⅝
12	13¼	15⅞	18	15¾	1⅛	13¼	4	⅝
15	16¼	19	21	18¾	1⅛	16¼	4	⅝
18	19¼	22⅛	24¼	22⅛	1¼	19¼	4	¾
20	22¼	25⅛	27¼	25⅛	1¼	22¼	4	¾
21	22¼	25⅛	27¼	25⅛	1¼	22¼	4	¾
24	25¼	28¼	30¼	28¼	1¼	25¼	6	¾
27	28¼	31¼	33¼	31¼	1¼	28¼	6	⅞
30	31¼	34¼	36½	34¼	1¼	31¼	6	⅞
36	37½	41½	43½	41½	1⅜	37½	6	⅞
42	43½	47½	49½	47½	1⅜	43½	6	⅞
48	49½	54	56½	54	1½	49½	6	1

FLANGED FLAP VALVES

R-5004 series

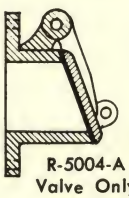


Off-vertical Gate attached to concrete head wall

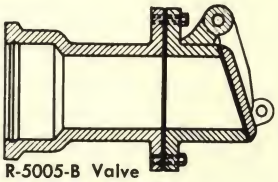
Flanged type flap valves are readily dismounted for repairs, replacement, etc. Flange of valve is standard 125 pound face and bolt circle type.

Specify:

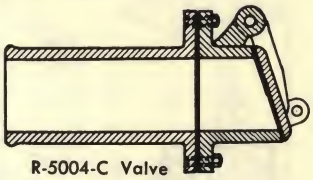
1. Catalog number; asphalt coated gray or ductile cast iron, or bronze.
2. If valve only or valve with bell or spigot end extension.
3. Dimensions. (Extension pieces supplied to fit any wall thickness.)



R-5004-A Valve Only



R-5005-B Valve with Bell End Extension



R-5004-C Valve with Spigot End Extension

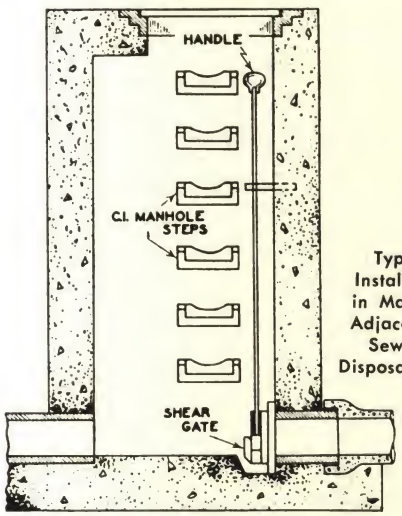
Catalog No.	Dimensions in Inches		Type	Catalog No.	Dimensions in Inches		Type
	Inside Dia.	Laying Length			Inside Dia.	Laying Length	
R-5004-A1	4	4	Flanged	R-5004-B3	8	12	Bell end
R-5004-A2	6	4½	Flanged	R-5004-B4	10	15½	Bell end
R-5004-A3	8	5	Flanged	R-5004-B5	12	16	Bell end
R-5004-A4	10	5½	Flanged	R-5004-C1	4	18	Spigot end
R-5004-A5	12	6	Flanged	R-5004-C2	6	16	Spigot end
R-5004-B1	4	14	Bell end	R-5004-C3	8	16	Spigot end
R-5004-B2	6	14½	Bell end	R-5004-C4	10	23	Spigot end
				R-5004-C5	12	24	Spigot end

SHEAR GATES

R-5005 series



Shear Gate with Spigot End

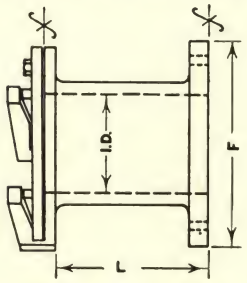


Typical Installation in Manhole Adjacent to Sewage Disposal Plant

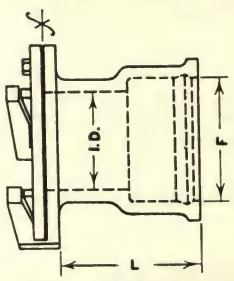
Used as control in many applications including sewage disposal, sewer lines, and other uses where positive regulation of flow is required. Heavy cast iron construction, for severe duty over long periods without maintenance. They are particularly adaptable under conditions normally causing corrosion and deterioration. Gates are machine finished for accurate fit. Hinge pins are solid bronze. Flange of gate is standard 125 pound face and bolt circle type.

Specify:

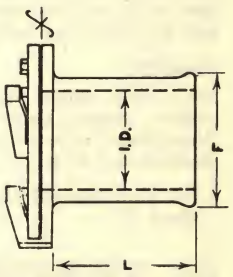
Catalog number; type; gray or ductile cast iron; if other than asphalt coating desired; length of lifting handle, if required; if bronze seat rings (at extra cost) required; if cast iron manhole steps needed (see p. 19).



Gate with Flanged End



Gate with Bell End

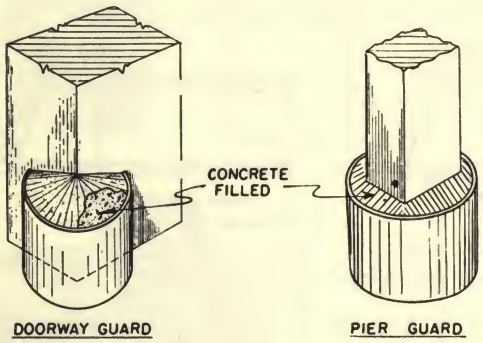


Gate with Spigot End

Catalog No.	Dimensions in Inches			Type	Catalog No.	Dimensions in Inches			Type
	I.D.	L	F			I.D.	L	F	
R-5005-A1	3	3¾	7½	Flanged	R-5005-F3	12	15	13¾	Spigot
R-5005-A2	3	3¾	4¾	Bell	R-5005-G1	15	10	22½	Flanged
R-5005-A3	3	10	4¼	Spigot	R-5005-G2	15	10	17¾	Bell
R-5005-B1	4	4	9	Flanged	R-5005-G3	15	16	16¾	Spigot
R-5005-B2	4	4	5¾	Bell	R 5005-H1	16	11	23½	Flanged
R-5005-B3	4	10	5¼	Spigot	R-5005-H2	16	11	18¾	Bell
R-5005-C1	6	4	11	Flanged	R-5005-H3	16	16	17¾	Spigot
R-5005-C2	6	16	7⅞	Bell	R-5005-J1	18	11	25	Flanged
R-5005-C3	6	10	6½	Spigot	R-5005-J2	18	11	20¾	Bell
R-5005-D1	8	5	13½	Flanged	R-5005-J3	18	16	20	Spigot
R-5005-D2	8	16	10	Bell	R-5005-K1	20	11	27½	Flanged
R-5005-D3	8	12	9½	Spigot	R-5005-K2	20	11	23	Bell
R-5005-E1	10	6	16	Flanged	R-5005-K3	20	16	22	Spigot
R-5005-E2	10	6	12	Bell	R-4005-L1	24	11	32	Flanged
R-5005-E3	10	14	11⅝	Spigot	R-5005-L2	24	11	27¼	Bell
R-5005-F1	12	6	19	Flanged	R-5005-L3	24	16	26	Spigot
R-5005-F2	12	6	14⅛	Bell					

WHEEL GUARDS†

R-4982, cast iron, heavy duty concrete filled type, for dooways, piers and utility



Provide full protection to doorways, piers, columns or other vertical surfaces which may be damaged by any type of vehicular traffic, including trucks and in plant industrial lift equipment. Cast iron protection for concrete vertical surfaces gives excellent finished appearance, elimination of most form work, provides impact, abrasion and corrosion resistance. This type of construction is widely used and accepted by leading engineers as economical construction, no maintenance being required.

Types

Type A and D are guards for opening not to be used with doors.
Type F and G are guards for corners or walls and are used extensively in industrial building construction. In many instances, utility lines such as electrical conduit, steam, water or gas lines are attached to walls subject to truck traffic and therefore liable to damage. The type F or G guards in heights of approximately four to six feet offer full protection. Type B, C, E, H and J are for openings with doors.

Specify:

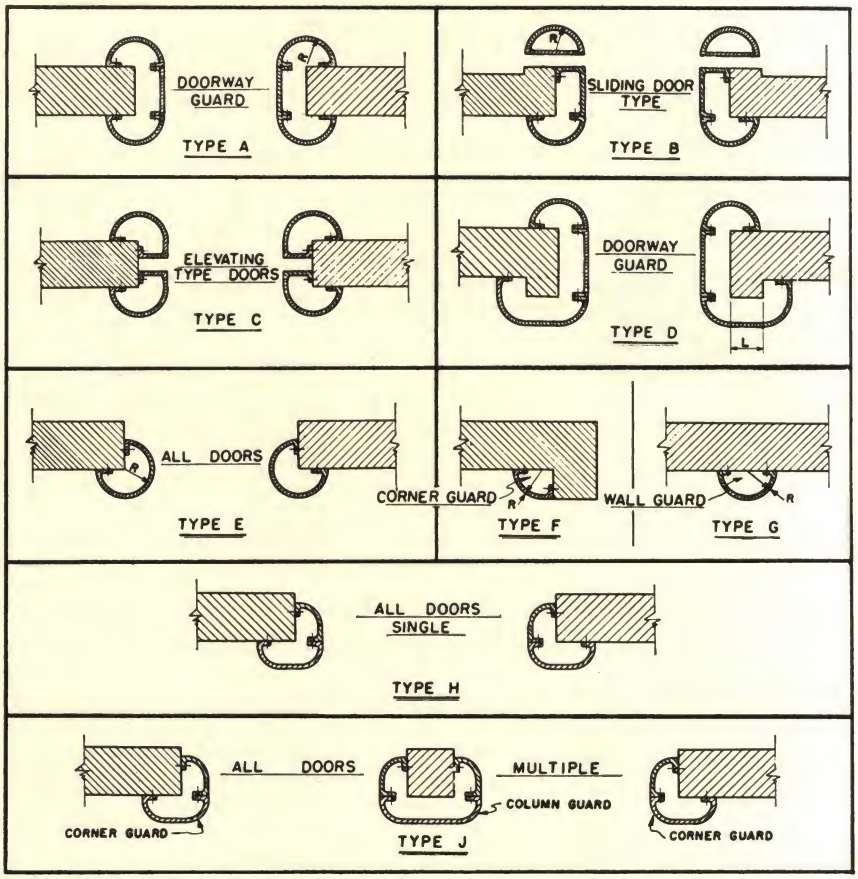
By giving sketch of all data, such as width, radius, height, anchor bolt size, space, etc. See dimension table at right. Also specify gray or ductile cast iron.

† For loading dock bumper guards, write for data sheet 97.

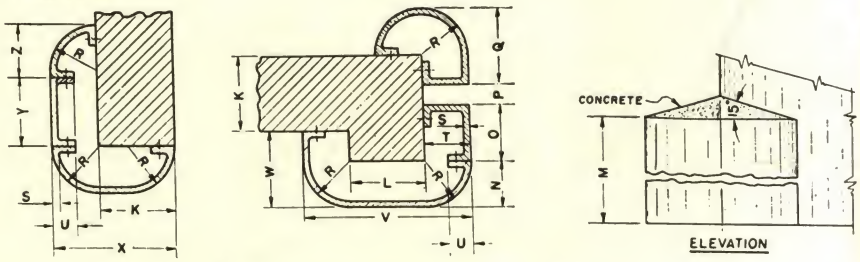


Typical Installation on Modern Overhead Door

Sections



Dimensions



Dimension	Data
K	Variable—as specified.
L	Variable—as specified.
M	12, 15, 18, 24, 30, 36, 42, 48 and 60 inches.
N	Variable, usually same as "R".
O	Variable—as specified.
P	As required, to allow door clearance.
Q	Variable—to fit building jamb.
R	6, 9 and 12 inches.
S	¾ to 1 inch.
T	Variable, usually same as "R".
U	4 inches.
V	As specified—equal to "L" + ("R"x2).
W	Variable—as specified.
X	As specified.
Y	Straight section—any length.
Z	Variable, usually same as "R".

WHEEL GUARDS†

R-4983 to R-4989 series, cast iron, heavy duty, hollow type for doorways, piers and utility

Approved designs withstand severe impact and abrasion. Wheel guards usually placed 1" below concrete for anchorage at base. Metal thickness ⅝ to 1".

Specify: Catalog number; dimensions; gray or ductile cast iron; if casting to be painted red lead (otherwise furnished asphalt coated); if anchor bolt holes to be cored straight or countersunk (⅞" holes furnished); grout holes if needed; if R-4984 only needed (otherwise furnished with separate extension piece as illustrated); if special sizes needed.

† For curb guards, see page 38.





R-4983-C



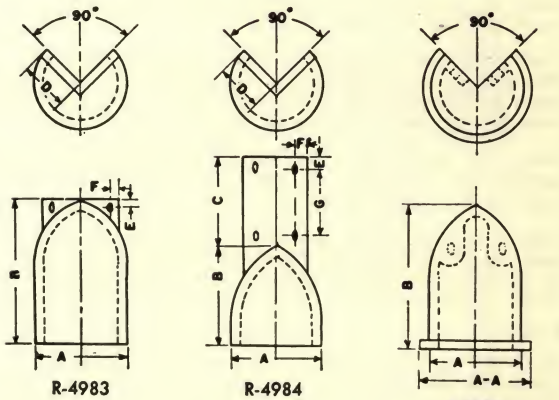
R-4989-C

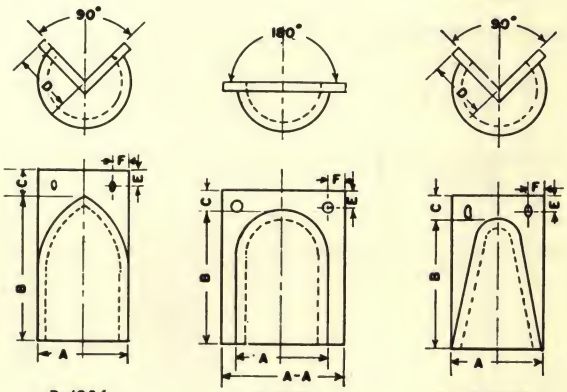
Left: R-4984-C with Separate Extension Piece

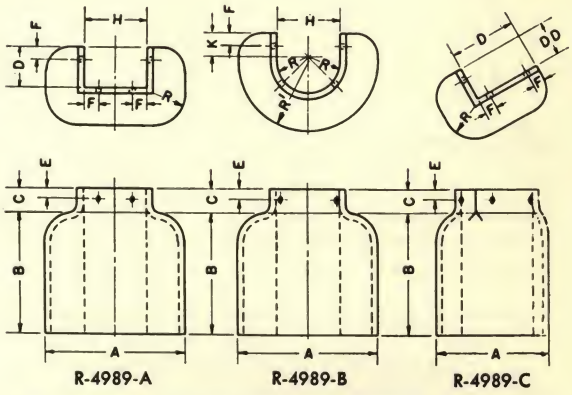
Catalog No.	Dimensions in Inches												
	A	AA	B	C	D	DD	E	F	G	H**	K	R	R¹
R-4983-A	12	—	18	—	6	—	2	2	—	—	—	—	—
R-4983-B	12	—	20	—	6	—	2	2	—	—	—	—	—
R-4983-C	12	—	24	—	6	—	2	2	—	—	—	—	—
R-4983-D	16	—	18	—	6	—	2	2	—	—	—	—	—
R-4983-E	16	—	20	—	6	—	2	2	—	—	—	—	—
R-4983-F	16	—	24	—	6	—	2	2	—	—	—	—	—
R-4984-A	12	—	18	24	6	—	2	2	20	—	—	—	—
R-4984-B	12	—	18	36	6	—	2	2	32	—	—	—	—
R-4984-C	12	—	18	42	6	—	2	2	38	—	—	—	—
R-4985-A	12	14	18	—	—	—	—	—	—	—	—	—	—
R-4985-B	12	14	20	—	—	—	—	—	—	—	—	—	—
R-4985-C	12	14	24	—	—	—	—	—	—	—	—	—	—
R-4986-A	12	—	18	4	6	—	2	2	—	—	—	—	—
R-4986-B	12	—	20	4	6	—	2	2	—	—	—	—	—
R-4986-C	12	—	22	4	6	—	2	2	—	—	—	—	—
R-4987-A	12	14	18	4	—	—	2	2	—	—	—	—	—
R-4987-B	12	14	20	4	—	—	2	2	—	—	—	—	—
R-4987-C	12	14	22	4	—	—	2	2	—	—	—	—	—
R-4988-A	10	—	20	4	6	—	2	2	—	—	—	—	—
R-4988-B	12	—	20	4	6	—	2	2	—	—	—	—	—
R-4988-C	14	—	24	4	6	—	2	2	—	—	—	—	—
R-4988-D	15	—	28	4	6	—	2	2	—	—	—	—	—
R-4989-A1	*	—	24	2½	6	—	1¼	2	—	—	—	6	—
R-4989-A2	*	—	24	2½	9	—	1¼	2	—	—	—	6	—
R-4989-A3	*	—	24	3	12	—	1½	2	—	—	—	9	—
R-4989-A4	*	—	24	3	15	—	1½	2	—	—	—	9	—
R-4989-A5	*	—	24	3	18	—	1½	2	—	—	—	9	—
R-4989-B1	*	—	24	2½	—	—	1¼	2	—	—	6	6	12
R-4989-B2	*	—	24	2½	—	—	1¼	2	—	—	9	6	12
R-4989-B3	*	—	24	3	—	—	1½	2	—	—	6	9	15
R-4989-B4	*	—	24	3	—	—	1½	2	—	—	9	9	15
R-4989-B5	*	—	24	3	—	—	1½	2	—	—	12	9	15
R-4989-C1	*	—	20	2½	12	9	1¼	2	—	—	—	9	—
R-4989-C2	*	—	20	2½	15	10	1¼	2	—	—	—	9	—
R-4989-C3	*	—	24	3	18	12	1½	2	—	—	—	9	—
R-4989-C4	*	—	24	3	21	14	1½	2	—	—	—	9	—
R-4989-C5	*	—	24	3	24	16	1½	2	—	—	—	9	—

*Varies. **Variable — 12 to 48 inches.

Sections









Installation Using R-4989-B Center and Corner Guards

CURB AND SIDEWALK GUARDS

R-4994 series, cast iron, heavy duty

Used for protection of concrete curb, traffic islands, parking areas, driveways and similar installations.

Cast iron guard is securely bonded to concrete and eliminates damage to concrete curb. Coefficient of expansion of cast iron and concrete are identical, for all practical purposes, making the bond between metal and concrete unaffected by temperature changes.

Cast iron elements resist abrasion and corrosion and are permanent in installation. Impact will not cause surface damage. Presents a pleasing and finished appearance.

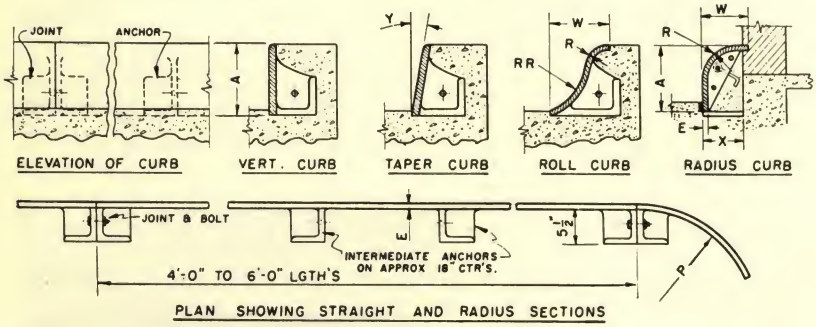
Cast iron curb guard has been used for many years with success. Forming labor in construction is reduced. Design of cast iron curb section requires no preliminary setting. Heavy anchors provide security in concrete. Holes in intermediate anchor lugs can be used for insertion of anchor rods.

Specify:

By sending drawing of your requirements. Guards manufactured in approximately four foot sections in any length required. Manufactured in straight lengths or corner radii or to fit any irregular confined area subject to traffic.

Types and Dimensions

Catalog No.	Type	Dimensions
R-4994-A	Vertical Curb	A—As specified E—¾ to 1 inches P—As required
R-4994-B	Taper Curb	A—As specified E—¾ to 1 inches P—As required Y—Any degree required
R-4994-C	Roll Curb	A—As specified E—¾ to 1 inches P—As required R—2 to 5 inches RR—4 to 8 inches W—4 to 12 inches
R-4994-D	Radius Curb	A—As specified E—¾ to 1 inches P—As required R—4 to 12 inches W—6 to 14 inches X—4 to 13 inches

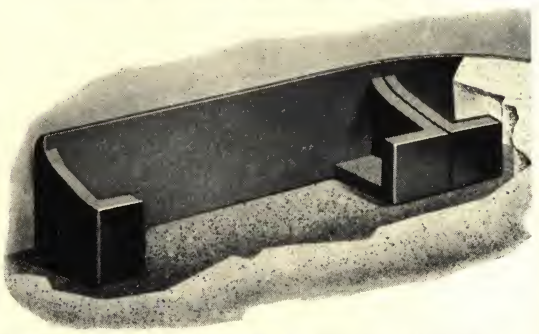




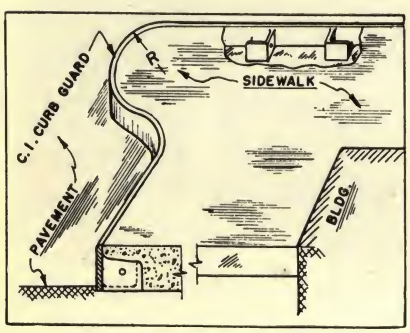
Island Guard Under Severe Traffic Conditions



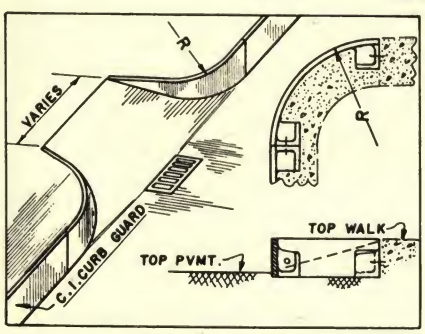
Cutaway View from Street Showing Curb Guard



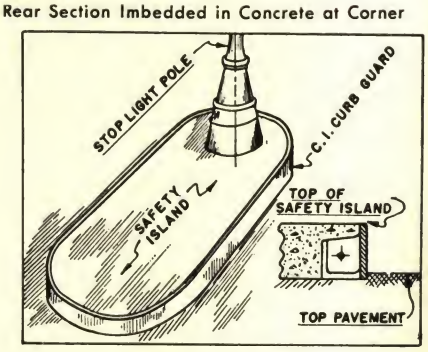
Cutaway of Rear Section Imbedded in Concrete at Corner



Vertical Curb Protection at Parking Area



Drop Curb Guard at Driveway



Traffic Island Guard

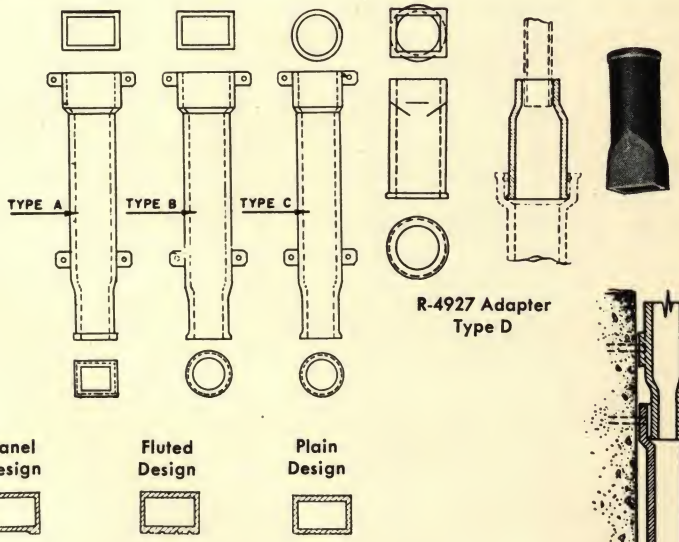
DOWN SPOUT SHOES

R-4924 to R-4927 series

Standard Down Spout Shoes—Gray or ductile cast iron, asphalt coated unless specified. Attractive appearance, low cost, durable construction. Type A, B, C or D (specify which required). Design may be panel (furnished unless otherwise specified), fluted or plain. For straight or offset installation, (specify which required). Fastening lugs drilled 5/8". Shoes can be stacked in multiples as shown if specified. Table shows shoes furnished from standard patterns. Prompt shipment on any size required. Specify catalog number.

Special Requirements—Standard patterns are adaptable to various special requirements. If the castings shown do not meet your specifications, send a sketch with dimensions and we will quote prices.

Catalog No.	Dimensions in Inches: Inside Bell	Outside Spigot	Laying Length	Type	Notes
R-4924-A	3½x4⅜	3½x3⅝	60	A	Straight
R-4924-B	3¾x4¾	4x5	24	A	Offset
R-4924-C	4x5½	3½x5	42	A	Straight
R-4925-A	3x4	4	24	B	Offset
R-4925-B	3x4	4	30	B	Offset
R-4925-C	3x4	4	30	B	Straight
R-4925-D	3x4	4	42	B	Straight
R-4925-E	3x4	4⅞	18	B	Offset
R-4925-F	3x4	4⅞	24	B	Offset
R-4925-G	3x4	4⅞	36	B	Straight
R-4925-H	3x4	4⅞	48	B	Straight
R-4925-J	3x4	4⅞	72	B	Offset
R-4925-K	3½x5	4⅞	38	B	Straight
R-4925-L	4x5	4⅞	25	B	Straight
R-4925-M	4x5	4⅞	25	B	Offset
R-4925-N	4x5	4⅞	30	B	Offset
R-4925-O	4x5	4⅞	34	B	Offset
R-4925-P	4x5	4⅞	48	B	Straight
R-4925-Q	4x5	4⅞	60	B	Straight
R-4925-R	5x7	7	18	B	Offset
R-4925-S	5x7	7	61	B	Straight
R-4926-A	5⅛	4⅞	36	C	Straight
R-4926-B	5⅛	4⅞	48	C	Straight
R-4926-C	5⅛	4⅞	60	C	Straight
R-4927-A	3x4	4⅞	9½	D	Straight Adapter Type
R-4927-B	3x4¾	4⅞	11½	D	
R-4927-C	4x4	4⅞	11½	D	
R-4927-D	4⅜x5⅜	4⅞	11½	D	
R-4927-E	4x5	4⅞	11½	D	
R-4927-F	4x5	5⅞	11½	D	

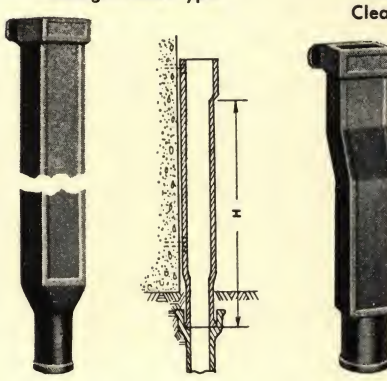


R-4927 Adapter Type D

Panel Design

Fluted Design

Plain Design



Straight Panel Type

Offset Panel Type 0-2½" Note Soil Pipe Clearance at Wall



Multiple Stacking

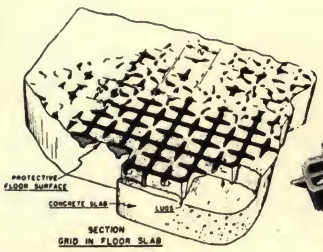
FLOOR GRIDS OR DRAIN GUTTERS

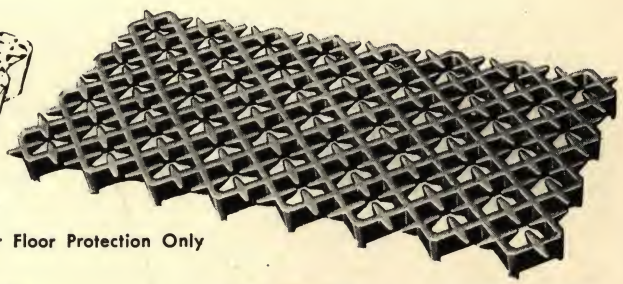
R-4972-3, cast iron

R-4972 only can also be used as a drain over gutter. Cast iron grids provide a surface resistant to impact, abrasion and corrosion, also insure better traction. They are laid in areas subject to heavy trucking and invaluable in protecting the floor from excessive wear. Concrete is poured flush with the top of the castings and the exposed iron protects the concrete.

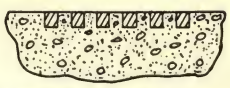
Catalog No.	Dimensions in Inches: Size	Thickness
R-4972-A	12x12	½
R-4972-B	12x24	¾
R-4972-C	24x24	1
R-4973-A	12x12	1*
R-4973-B	12x24	1*

*Plus ¼" bottom pegs.

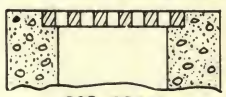




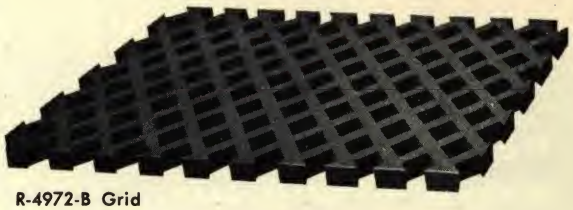
R-4973-B Grid for Floor Protection Only



FOR FLOOR PROTECTION



FOR DRAIN



R-4972-B Grid

CONSTRUCTION CASTINGS

SPECIFICATIONS

Neenah Quality Construction Castings conform to the following requirements which may be used in your specifications to assure complete satisfaction.

1—General—Castings shall be as manufactured by Neenah Foundry Company, Neenah, Wisconsin. They shall be of uniform quality, free from blow holes, porosity, hard spots, shrinkage defects, cracks or other injurious defects. They shall be smooth and well cleaned by shot blasting or other approved methods. Unless otherwise specified, they shall be coated with coal tar pitch varnish of specification which will make a smooth coating, tough and tenacious when cold, not tacky and not brittle.

2—Quality—for Gray Iron: Material used in the manufacture of the castings shall conform to ASTM specifications A48-56 Class 30 iron or of U. S. Government specification QQ1-652a, **for Ductile Iron:** Material shall conform to one of the following types:

Types of Ductile Iron and Typical Range of Mechanical Properties

Type	Tensile Strength psi	Yield Strength psi	Elongation %	Specifications
60-45-10	60/80,000	45/60,000	10/30	ASTM A339-55 MIL-I-11466 (ORD.)
60-40-15	60/80,000	40/60,000	15 MIN.	MIL-I-17166 (SHIPS) (1) AMS No. 5315 (2) ASTM A395-56T (3)
80-60-03	80/100,000	60/75,000	3/10	ASTM-A339-55 MIL-I-11466 (ORD.) AMS No. 5316
100-70-03	100/120,000	70/90,000	3/10	ASTM A-396-55T

3—Finish—All castings are to be manufactured true to pattern and with satisfactory fit of component parts. Round frames and covers shall be of non-rocking design or with machined bearing surfaces so fitting parts will not rattle or rock under traffic.

4—Weight—All weights as given are approximate and average. Variation will not exceed specified weight limits in accordance with ASTM Standards.

The above used in your specifications assures highest quality.

SERVICES

Construction casting orders won't wait. We don't expect them to. Our large on-hand stocks of standard and special castings are maintained for prompt shipment. And whether an order is for one or two castings, or several carloads, we're in the position to fill it without delay . . . and have the earned reputation of doing just that. Central location and excellent transportation facilities implement our promise of promptness. Partial view of stocks with loading ramps is illustrated at right.

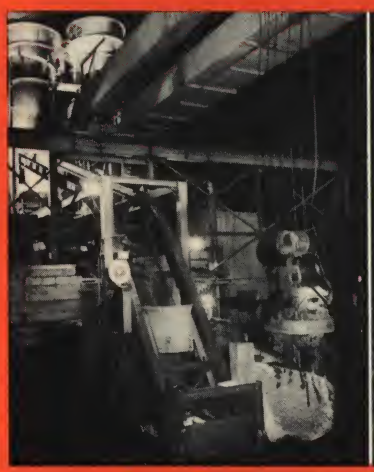
OTHER PRODUCTS . . . .

Meter Covers • Adjusting Rings • Bridge, Subway and Building Drains • Sign and Marker Bases • Flap Valves • Floor Plates • Automatic Drainage Gates • Disposal Plant Castings • Sidewalk Plates • Flush Valves • Street Drains • Filter Bed Drains • Electrical Castings • Pressure Relief Valves • Shear Gates • Airport Castings • Drainage Structures and Grates • Coal Hole Frames and Covers • Roof and Floor Drains.

Write for Catalog "R", Third Edition, illustrating the complete line of Neenah Construction Castings.



Raw Material Handling



Cupola Charging



Pouring Bay



Partial View of Stocks

NEENAH FOUNDRY COMPANY

NEENAH • WISCONSIN

Plant and Main Office at Neenah

Phone: PArkway 2-1577

Sales Office

5445 North Neva Avenue • Chicago 31, Illinois

Phone ROdney 3-2833

Printed in U. S. A.

section

7

glass, plastics

subsections

glass a

glass blocks b

glazing and caulking compounds c

plastics d

firms

this index covers only firms in this section

section number	**7a**
first letters of firm name	**Ab**

Alsynite Co. of America.....7d/AL
American-Saint Gobain Corp. 7a/Am
Asphalt Corp. of America 7d/As
Barclite Corp. of America 7d/Ba
Concord Paint Co., Inc. 7c/Co
Dearborn Glass Co. 7a/De
Dicks-Armstrong-Pontius 7c/Di
Filon Plastics Corp. 7d/Fi
Fourco Glass Co.....7a/Fo
Houze Glass Corp. 7a/Ho
International Molded Plastics, Inc.,
Structoglas Div. 7d/In
Johns-Manville 7d/Jo
Libbey-Owens-Ford Glass Co.....7a/Li
Lynch Asbestos Co. 7d/Ly
Mississippi Glass Co.....7a/Mi
Owens-Illinois 7b/Ow
Pennsylvania Wire Glass Co. 7a/Pe
Pittsburgh Corning Corp. 7b/Pi
Pittsburgh Plate Glass Co.....7a/Pi
Resolite Corp. 7d/Re
Richards, J. Merrill 7a/Ri
Rohm & Haas Co. 7d/Roh
Thiokol Chemical Corp. 7c/Th

block—glass

see *glass blocks* 7

caulking

(see also curtain walls—insulation, adhesives, caulking, and sealing compounds for 3
caulking—masonry .....1)

compounds for—glass, plastic, etc.
Asphalt Corp. of America 7d/As; 8b/As
Concord Paint Co., Inc. 7c/Co
DeWitt Products Co. 29a/De
Dicks-Armstrong-Pontius, Inc. 7c/Di
Fuller, H. B., Co. 3f/Fu
Kuhls, H. B. Fred 9/Ku
Lambert Corp. 9/La
Marsh Wall Products, Inc., Sub Masonite Corp. 14b/Ma
Minnesota Mining & Mfg. Co., Adhesives, Coatings & Sealers Div. 3f/Mi
Miracle Adhesives Corp. 10a/Mir
Parr Paint & Color Co., Compound Div. 3f/Pa
Pecora, Inc. 3f/Pe
Products Research Co. 3f/Pro
Presstite Div., American-Marietta Co...3f/Pre
Seaporcel Metals, Inc. 3c/Se
Standard Products Co. 3f/St
Thiokol Chemical Corp. 7c/Th
Tremco Mfg. Co. 3f/Tr
Webster, W. F., Cement Co. 3f/We

expansion joint
Concord Paint Co., Inc. 7c/Co
DeWitt Products Co. 29a/De
Kuhls, H. B. Fred 9/Ku
Lambert Corp. 9/La
Minnesota Mining & Mfg. Co., Adhesives, Coatings & Sealers Div. 3f/Mi
Pecora, Inc. 3f/Pe
Presstite Div., American-Marietta Co...3f/Pre
Webster, W. F., Cement Co. 3f/We

guns for
Kuhls, H. B. Fred 9/Ku

joint sealers and fillers (strips, oakum, plastic rope)
Asphalt Corp. of America 7d/As; 8b/As
Concord Paint Co., Inc. 7c/Co
DeWitt Products Co. 29a/De
Dicks-Armstrong-Pontius, Inc. 7c/Di
Kuhls, H. B. Fred 9/Ku
Lambert Corp. 9/La
Minnesota Mining & Mfg. Co., Adhesives, Coatings & Sealers Div. 3f/Mi
Miracle Adhesives Corp ...10a/Mir; 13c/Mir
Moore, Goodloe E., Inc. 10a/Mi
Pawling Rubber Corp. 3f/Paw
Pecora, Inc. 3f/Pe
Presstite Div., American-Marietta Co...3f/Pre
Products Research Co. 3f/Pro
Standard Products Co. 3f/St
Tremco Mfg. Co. 3f/Tr
Webster, W. F., Cement Co. 3f/We

ceilings

luminous
(see also lighting fixtures:—louvered, grid type or luminous ceiling..33)
Columbia Electric & Mfg. Co. 33a/Co
Contrex Co. 11a/Con
Diffusa-Lite Co. 33a/Di
Guth, Edwin F., Co. 33a/Gu
Hexcel Products Inc. 33a/He
Lynch Asbestos Co. 7d/Ly
Sinko Mfg. & Tool Co. 33a/Sin
Smithcraft Lighting 33a/Sm
Sylvania Electric Products, Inc. 33a/Sy

plastic—corrugated or flat sheet
Columbia Electric & Mfg. Co. 33a/Co
Contrex Co. 11a/Con
Cupples Products Corp., Alumi-Coustic Div. 11b/Cu
Curon Div., Curtiss-Wright Corp. 13k/Cu
Diffusa-Lite Co. 33a/Di
Luminous Ceilings Inc. 33a/Lum
Lynch Asbestos Co. 7d/Ly
Resolite Corp. 7d/Re
Rohm & Haas Co. 7d/Ro

glass

anti-glare
American-Saint Gobain Corp. 7a/Am
Dearborn Glass Co. 7a/De
Houze Glass Corp. 7a/Ho
Libbey-Owens-Ford Glass Co. 7a/Li
Mississippi Glass Co. 7a/Mi
Pennsylvania Wire Glass Co. 7a/Pe
Pittsburgh Plate Glass Co. 7a/Pi
Richards, J. Merrill 7a/Ri

anti-glare film for
Toch Brothers, Div. Standard-Toch Chemicals, Inc. 9/To

brick or block
see *glass blocks* 7

bullet-resisting
Libbey-Owens-Ford Glass Co. 7a/Li

corrugated
American-Saint Gobain Corp. 7a/Am
Libbey-Owens-Ford Glass Co. 7a/Li
Mississippi Glass Co. 7a/Mi
Pennsylvania Wire Glass Co. 7a/Pe
Pittsburgh Plate Glass Co. 16d/Pi

diffusing
see *glass: — patterned, decorative, textured or curved* 7

double-glazed panel
see *glass:—insulating panel* 7

glare-reducing
see *glass—anti-glare* 7

heat-absorbing
American-Saint Gobain Corp. 7a/Am
Houze Glass Corp. 7a/Ho
Libbey-Owens-Ford Glass Co. 7a/Li

glass *cont.*

heat absorbing *cont.*
Mississippi Glass Co. 7a/Mi
Pennsylvania Wire Glass Co. 7a/Pe
Pittsburgh Plate Glass Co. 7a/Pi

insulating panel
American-Saint Gobain Corp. 3e/Ame; 7a/Am
Dearborn Glass Co. 7a/De
Kawneer Co. 3a/Ka
Libbey-Owens-Ford Glass Co. 7a/Li
Pittsburgh Plate Glass Co. 7a/Pi
Virginia Metal Products, Inc. 22a/Vi

masonry
see *glass blocks* 7

mirrors
see *mirrors* 7

patterned, decorative, textured or carved
American-Saint Gobain Corp. 3e/Ame; 7a/Am; 16d/Am
Dearborn Glass Co. 7a/De
Houze Glass Corp. 7a/Ho
Libbey-Owens-Ford Glass Co. 7a/Li
Mississippi Glass Co. 7a/Mi
Pennsylvania Wire Glass Co. 7a/Pe
Pittsburgh Plate Glass Co. 7a/Pi; 13e/Pi; 16d/Pi
Rambusch 23h/Ra
Richards, J. Merrill 7a/Ri
Virginia Metal Products, Inc. 22a/Vi

pipe
see *piping and tubing:—drainage—glass..29*

plate
Fourco Glass Co. 7a/Fo
Houze Glass Corp. 7a/Ho
Libbey-Owens-Ford Glass Co. ...3e/Li; 7a/Li
Pittsburgh Plate Glass Co. 7a/Pi

plate—colored
American-Saint Gobain Corp. 7a/Am

safety
American-Saint Gobain Corp. 7a/Am
Dearborn Glass Co. 7a/De
Libbey-Owens-Ford Glass Co. 7a/Li
Pittsburgh Plate Glass Co. 7a/Pi

sheet
American-Saint Gobain Corp. 7a/Am
Dearborn Glass Co. 7a/De
Fourco Glass Co. 7a/Fo
Houze Glass Corp. 7a/Ho
Libbey-Owens-Ford Glass Co. 7a/Li
Pittsburgh Plate Glass Co. 7a/Pi

shower doors
see *showers:—doors* 27

stained and leaded
see *church equipment:—stained glass*.....23

structural (colored, opaque)
American-Saint Gobain Corp. 7a/Am
Dearborn Glass Co. 7a/De

products

glass *cont.*

structural (colored, opaque) *cont.*
Houze Glass Corp. 7a/Ho
Libbey-Owens-Ford Glass Co. ..3c/Li; 7a/Li
Mississippi Glass Co. 7a/Mi
Pennsylvania Wire Glass Co. 7a/Pe
Pittsburgh Plate Glass Co.....7a/Pi; 13e/Pi

tempered
American-Saint Gobain Corp. 7a/Am
Libbey-Owens-Ford Glass Co.....7a/Li
Pittsburgh Plate Glass Co. 7a/Pi; 16d/Pi

wall
see *curtain walls* 3

window wall
see *doors:—glass—sliding (window wall)*..16

wire—safety
American-Saint Gobain
Corp. 3e/Ame; 7a/Ame
Mississippi Glass Co. 7a/Mi
Pennsylvania Wire Glass Co. 7a/Pe
Richards, J. Merrill 7a/Ri

x-ray-protective
Ameray Corp. 22e/Am
General Lead Construction Corp. 22e/Ge
New England Lead Burning Corp., Inc. 22e/Ne
Pittsburgh Plate Glass Co. 7a/Pi
Ray Proof Corp. 22e/Ra

glass blocks

Owens-Illinois 7b/Ow
Pittsburgh Corning Corp. 7b/Pi
Rambusch 23h/Ra

accessories for—anchors, caulking compounds, joints, etc.
Owens-Illinois 7b/Ow
Pittsburgh Corning Corp. 7b/Pi
Presstite Div., American-Marietta Co...3f/Pre
Universal Atlas Cement, Div. United
States Steel 4i/Uni

ventilators for
Construction Specialties, Inc. 20d/Con
Owens-Illinois 7b/Ow
Wilke Metal Products, Inc. 17a/Wi

windows for
see *windows—special types:—for glass block construction* 17

glazing compounds

putty, plastic, rubber, etc.
Concord Paint Co., Inc. 7c/Co
DeWitt Products Co.....29a/De
Dicks-Armstrong-Pontius, Inc. 7c/Di
Kuhls, H. B. Fred 9/Ku
Pawling Rubber Corp. 3f/Paw
Fecora, Inc. 3f/Pe
Presstite Div., American-Marietta Co...3f/Pre
Products Research Co. 3f/Pro
Sonneborn, L., Sons, Inc. 9/So
Standard Products Co. 3f/St
Thiokol Chemical Corp. 7c/Th
Tremco Mfg. Co. 3f/Tr
United States Gypsum 15/Un

strip, tape or ribbon
Concord Paint Co., Inc. 7c/Co
Dicks-Armstrong-Pontius, Inc. 7c/Di
Pawling Rubber Corp. 3f/Paw
Pecora, Inc. 3f/Pe

glazing compounds *cont.*

strip, tape or ribbon *cont.*
Presstite Div., American-Marietta Co...3f/Pre
Standard Products Co. 3f/St
Tremco Mfg. Co. 3f/Tr

lights

window—glass
see *glass* 7

window—plastic
Alsynite Co. of America 7d/AL
Filon Plastics Corp. 7d/Fi
International Molded Plastics, Inc.,
Structoglas Div. 7d/In
Johns-Manville 7d/Jo
Rohm & Haas Co. 7d/Roh

masking tape

see *tape—plastic—protective, sealing* 7

mirrors

(see also bathroom cabinets and mirrors .....27)
All Metal Mfg. Co. 27d/AL
Architectural Metalcrafts Corp. 27d/Ar
Columbia Metal Box Co. 27d/Co
Hall-Mack Co. 27d/Ha
Ketcham, G. M., Mfg. Corp.....27d/Ke
Libbey-Owens-Ford Glass Co. 7a/Li
Miami Cabinet Div., Philip Carey
Mfg. Co. 27d/Mi
Parker, Charles, Co.....27d/Pa
Pittsburgh Plate Glass Co. 7a/Pi

frames for
see *frames—metal—mirror or picture*.....6

transparent
Libbey-Owens-Ford Glass Co. 7a/Li

plastic materials

anti-glare
Alsynite Co. of America 7d/AL
Barclite Corp. of America 7d/Ba
Barrett Div., Allied Chemical Corp. ...8a/Ba
Contrex Co. 11a/Con
Filon Plastics Corp. 7d/Fi
Johns-Manville 7d/Jo
Kalwall Corp. 3e/Ka
Lynch Asbestos Co. 7d/Ly
Nova Sales Co., Sub. Homasote Co...8d/No
Panel Structures, Inc. 3e/Pa
Resolite Corp. 7d/Re
Rohm & Haas Co. 7d/Roh
Sinko Mfg. & Tool Co.....33a/Sin

colored
Alsynite Co. of America 7d/AL
Barclite Corp. of America 7d/Ba
Barrett Div., Allied Chemical Corp. ...8a/Ba
Contrex Co. 11a/Con
Corry Jamestown Corp. 22a/Co
Curon Div., Curtiss-Wright Corp.....13k/Cu
Fiberesin Plastics Co. 14b/Fi
Filon Plastics Corp. 7d/Fi
Formica Corp., Sub. Cyanamid 14a/Fo
General Electric Co., Laminated Products
Dept. 14a/Ge
Johns-Manville 7d/Jo
Kalwall Corp. 3e/Ka
Lynch Asbestos Co. 7d/Ly
Nova Sales Co., Sub. Homasote Co...8d/No

plastic materials *cont.*

colored *cont.*
Panel Structures, Inc. 3e/Pa
Resolite Corp. 7d/Re
Rohm & Haas Co. 7d/Roh
Sinko Mfg. & Tool Co.....33a/Sin

corrugated or flat sheet
Alsynite Co. of America 7d/AL
Barclite Corp. of America 7d/Ba
Barrett Div., Allied Chemical Corp. ...8a/Ba
Contrex Co. 11a/Con
Corry Jamestown Corp. 22a/Co
Curon Div., Curtiss-Wright Corp.....13k/Cu
Fiberesin Plastics Co. 14b/Fi
Filon Plastics Corp. 7d/Fi
Formica Corp., Sub. Cyanamid 14a/Fo
International Molded Plastics, Inc.,
Structoglas Div. 7d/In
Johns-Manville 7d/Jo
Lynch Asbestos Co. 7d/Ly
Nova Sales Co., Sub. Homasote Co...8d/No
Pioneer Plastics Corp. 14a/Pi
Resolite Corp. 7d/Re
Rohm & Haas Co. 7d/Roh

corrugated or flat sheet—filler strips for
Asphalt Corp. of America 7d/As
Johns-Manville 7d/Jo

diffusing
Alsynite Co. of America 7d/AL
Barclite Corp. of America 7b/Ba
Barrett Div., Allied Chemical Corp. ...8a/Ba
Contrex Co. 11a/Con
Filon Plastics Corp. 7d/Fi
Johns-Manville 7d/Jo
Kalwall Corp. 3e/Ka
Lynch Asbestos Co. 7d/Ly
Nova Sales Co., Sub. Homasote Co...8d/No
Panel Structures, Inc. 3e/Pa
Resolite Corp. 7d/Re
Rohm & Haas Co. 7d/Roh
Sinko Mfg. & Tool Co.....33a/Sin

fluorescent
Rohm & Haas Co. 7d/Roh

laminated
see *surfacing and paneling:—laminated —plastic* 14

masking tape
see *tape—plastic—protective, sealing* 7

patterned or textured
Alsynite Co. of America 7d/AL
Barclite Corp. of America 7d/Ba
Contrex Co. 11a/Con
Corry Jamestown Corp. 22a/Co
Curon Div., Curtiss-Wright Corp.....13k/Cu
Fiberesin Plastics Co. 14b/Fi
Formica Corp., Sub. Cyanamid 14a/Fo
General Electric Co., Laminated Products
Dept. 14a/Ge
Johns-Manville 7d/Jo
Nova Sales Co., Sub. Homasote Co...8d/No
Pioneer Plastics Corp. 14a/Pi
Rohm & Haas Co. 7d/Roh
Resolite Corp. 7d/Re

shock-resistant
Alsynite Co. of America 7d/AL
Barclite Corp. of America 7d/Ba
Barrett Div., Allied Chemical Corp. ...8a/Ba
Filon Plastics Corp. 7d/Fi
Johns-Manville 7d/Jo
Lynch Asbestos Co. 7d/Ly

plastic materials *cont.*

shock resistant *cont.*

Nova Sales Co., Sub. Homasote Co...8d/No
Pioneer Plastics Corp. 14a/Pi
Resolite Corp. 7d/Re
Rohm & Haas Co. 7d/Roh
Sinko Mfg. & Tool Co.....33a/Sin

translucent

Alsynite Co. of America 7d/AL
Barclite Corp. of America 7d/Ba
Contrex Co. 11a/Con
Corry Jamestown Corp. 22a/Co
Filon Plastics Corp. 7d/Fi
Johns-Manville 7d/Jo
Kalwall Corp. 3e/Ka
Lynch Asbestos Co. 7d/Ly
Nova Sales Co., Sub. Homasote Co...8d/No
Panel Structures, Inc. 3e/Pa
Rohm & Haas Co. 7d/Roh

putty

see glazing compounds:—putty, plastic, rubber, etc. 7

radiation—protective equipment

see specific type x-ray-protective product as:
concrete block:—x-ray-protective 4
glass:—x-ray-protective 7
lath:—x-ray-protective; plaster;—x-ray-protective 12
panels and boards—prefinished: x-ray-protective 14
doors:—x-ray-protective 16
windows—special types:—x-ray-protective 17
nails, screws, etc.:—x-ray-protective ..18
louvers—door or window:—x-ray-protective 19
ceilings:—x-ray-protective; partitions: —x-ray-protective 22

rubber and synthetic rubber compounds

Fuller, H. B., Co. 3f/Fu
Products Research Co. 3f/Pro
Thiokol Chemical Corp. 7c/Th

spandrels—glass

(see also spandrels—stone:—specific type 4
spandrels—metal:—specific type .....7)
Pittsburgh Plate Glass Co. 3e/Pit; 13e/Pi

tape—plastic—protective, sealing

Clark Div., Standard Products Co....17b/CLa
Concord Paint Co., Inc. 7c/Co
Dicks-Armstrong-Pontius, Inc. 7c/Di
Gering Plastics Div., Studebaker-Packard Corp. 9/Ger
Johns-Manville 7d/Jo
Pecora, Inc. 3f/Pe
Rubber & Plastics Compound Co., Inc..8g/Ru
Seaporcel Metals, Inc. 3c/Se

ventilators

glass block construction

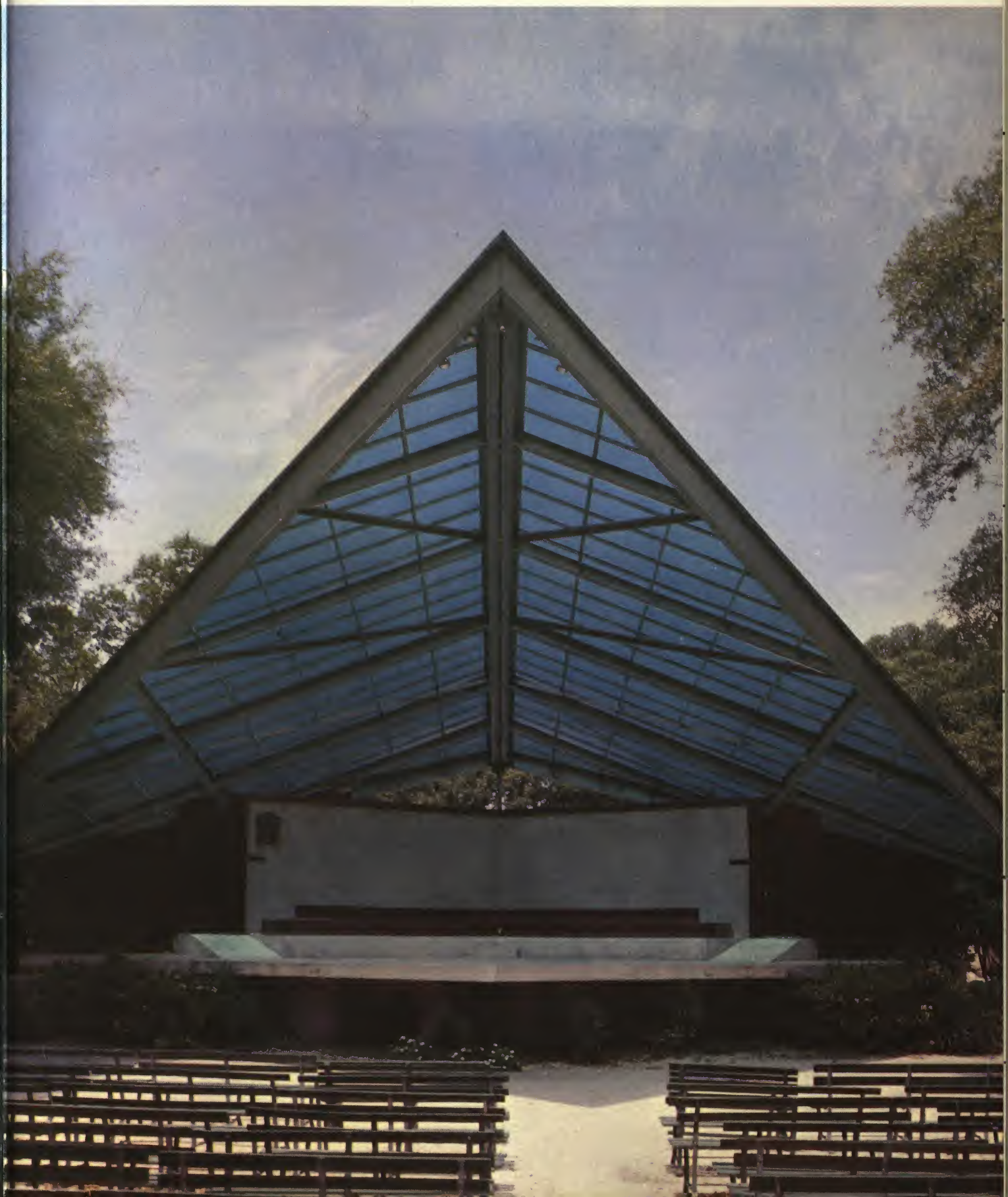
see glass blocks:—ventilators for.....7

AMERICAN—SAINT GOBAIN CORPORATION

AIA-26-A

GLASS PRODUCTS

1 9 6 0



AMERICAN—SAINT GOBAIN

The American-Saint Gobain Corporation was formed early in 1958 by the merger of the American Window Glass Company of Pittsburgh, Pa., and the Blue Ridge Glass Corporation of Kingsport, Tennessee. The latter was a wholly owned subsidiary of Saint Gobain of Paris, France. By this merger was combined a group of glass makers whose long history of flat glass making is unequalled in the world.

With plants in Arnold, Jeannette, and Ellwood City, Pennsylvania, and Okmulgee, Oklahoma, the American Window Glass Company was founded in July, 1899, as a consolidation of approximately twenty small manufacturers, which produced at that time a majority of the sheet glass in the United States. In its program continually to improve the quality of its products, AMERICAN has led in the introduction of new production methods . . . as far back as 1903 it was the first producer in history to manufacture sheet glass by a machine process. It has also introduced many new products to its line, such as LUSTRAGRAY tinted glass for glare reduction, and SUPRATEST laminated safety glass.

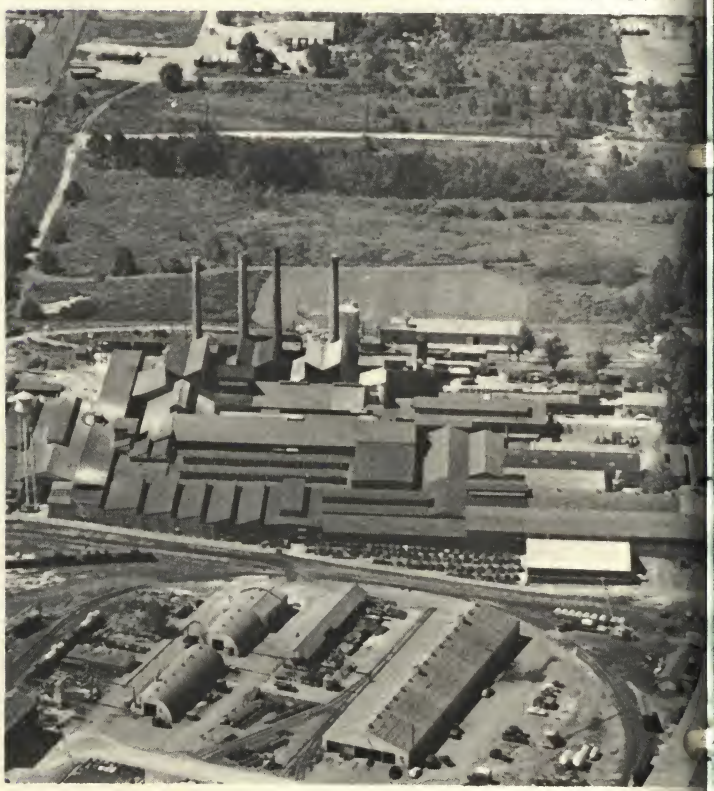
The Blue Ridge Glass Corporation, with its plant in Kingsport, was founded in 1925 by Corning Glass Works of United States, Saint Gobain of France, and Saint Roch of Belgium. In 1954 Saint Gobain assumed complete ownership. The founding principals of Blue Ridge brought into that company over 500 years' experience in glass making and technical glass knowledge. Blue Ridge brings to American-Saint Gobain a variegated line of rolled glass products as diverse as the creative demands of the architect.

One reason for the unification of these interests into the American-Saint Gobain Corporation was to make available, from one source, a complete line of flat glass products in the United States . . . for the architect, engineer, and designer, as planners and specifiers . . . for the glass jobber and dealer, as suppliers to the trade . . . and for the public, as ultimate consumer.



Sheet Glass Plant, Arnold, Pa.

Patterned Glass Plant, Kingsport, Ten



Cover
Band Shell in St. Petersburg, Fla.
Architects: William B. Harvard, St. Peters, Fla.

Patterned Glasses	Patterned glasses are available in a wide variety of types, patterns and finishes. Type is selected according to the desired use; heat absorbing, strength, etc. Pattern and finish are determined according to the desired effect or light obscurity. All answer the specific decorative and functional requirements of the architect, designer, or contractor.	section 1
Sheet Glasses	American-Saint Gobain sheet glasses are available in four different types. Each is especially designed and engineered to meet the varying requirements in all types of general construction glazing—from clear window glasses for most residential or commercial uses; to grey or colored glasses for glare control; to laminated glasses where extreme safety is a factor.	2
Glass Doors	Two styles are available for either single or double installations. Each may be obtained centre or offset hung, pivoted or conventionally hinged, with a variety of hardware, closing and locking devices. Securit, available as a special process with most American-Saint Gobain glasses, is a feature of all glass doors because of the need for additional strength and shock resistance.	3
Spandrel Glasses	Huetex was especially designed as a spandrel glass. It is 5/16″ thick Securit Patterned Glass on the back of which has been permanently bonded a ceramic color and over that a thin aluminum coating. Available in twelve standard colors, or in special colors, the resultant spandrel is both striking in appearance as well as functional.	4
Special Glasses and Products	Special uses for flat glass especially as components of other products, such as: bulb edge glass for shelving and counter-top dividers, Feurex, a low expansion borosilicate glass, or Lustrawhite and thin glass for picture framing and microscope slides respectively, etc.	5
Plate Glasses	Plate glass, mechanically ground and polished to a fine optically true surface, is visually the highest quality flat glass. Used for display windows, mirrors, and large openings, clear or colored.	6

PATTERNED

architects' and designers' glass

Blue Ridge patterned glass (sometimes called rolled, obscure, rough, or translucent glass) by American-Saint Gobain, is used for industrial, commercial, or domestic glazing, where light is to be transmitted without sacrifice of privacy.

Blue Ridge® Patterned glass is semi-transparent, with distinctive geometric or over-all designs on one or both surfaces. The glass diffuses transmitted light and affords varying degrees of obscurity for the many requirements of decorative or functional uses. Patterned glass comes in many forms and finishes, including standard, with natural finish, heat absorbing or heat resisting, white translucent, annealed or tempered, and wired (patterned or polished surface) for safety and for use as a fire retardant. It is often cut to special shapes or bent into special configurations, for use in special applications such as lighting fixtures.

The recent trend in architecture to curtain-wall construction finds many uses for Blue Ridge wired glasses, as well as for the specially coated and finished HUETEX . . . a spandrel glass which insulates, lends color, and gives permanence to modern architectural structures. At the same time, patterned glasses give the architect and decorator unlimited creative possibilities in the use of patterned glass in interior walls and partitions. Blue Ridge Patterned glasses are variously used as components for many manufactured articles of importance to the architect and designer such as home appliances, lighting fixtures and furniture.

On the pages immediately following are listed and shown some of the Blue Ridge Patterned glass products. For further information call your local flat glass jobber or our nearest office listed on the back of this bulletin . . . or write to us.

For short form specifications see back cover.

how to select and specify

types

PLAIN ROLLED

Clear surfaces with patterns formed into one or both sides as it comes from the rolling machines or with surface finishes. Used for most decorative and functional applications.

HUETEX®

A special glass consisting of 5/16" Securit patterned glass with a ceramic color bonded to the back and backed with aluminum. Used for paneling, wainscoating, or facing.

AKLO *

A blue-green heat absorbing and glare reducing glass. Used where glare, material spoilage, air conditioning costs, etc. are a factor.

* Registered Trade Mark—Licensed by Corning Glass Works.

The first consideration in the selection of a patterned glass is its intended use, e.g., heat absorbing, strength, etc. One of the six basic types described below may be chosen. Pattern, the second consideration, depends upon design and use also, for some patterns are more obscure than others. Reference may be made to the list of patterns available for a particular type on pages 10-12 where all patterns are illustrated and described. Finally, the selected pattern may be made more obscure or changed in appearance by the specification of one of the three finishes described below. Designed Satinol, one of these finishes, is also available as illustrated on page 13.

Some architects or designers may wish to select pattern first. This may be done by selecting a pattern on pages 10 to 12, and then, according to the reference found under each, by referring back to the information about types.

HUEWHITE®

A light diffusing and glare reducing glass, where heat absorption is not a main consideration. Used for decorative purposes, or in schools, offices, museums, etc.

SECURIT®

A heat-tempered glass for added strength. Used for doors, partitions, shower enclosures, or areas where hard, rough usage is likely.

WIRED

Approved fire retardant glass for schools, public buildings, other areas where safety is a factor. Also effective as a decorative glass.

patterns

Blue Ridge patterned glass by American-Saint Gobain is semi-transparent, with distinctive geometric or linear designs on one or both surfaces. The glass diffuses transmitted light, and affords varying degrees of obscurity, for the many requirements of decorative or functional uses. For your selection, the wide variety of available patterns is illustrated on pages 10 through 12.

finishes

Satinol finish — treatment of one or both surfaces provides a soft satin-like appearance, decreases light transmission approximately 3% one side or 6% two sides, and spreads transmitted light uniformly. Does not finger mark or collect dust and dirt.

Reduces resistance to impact or mechanical stress. This must be considered in determining size and use.

Frosted finish — acid etching of one or both surfaces improves distribution of transmitted light, reduces glare, — and decreases light transmission 15 — 20%. Not recommended for partitions or decorative use.

Sandblasted finish — increases obscurity and diffusion, but is hard to clean and very fragile. Reduces light transmission by 20-30% if applied to both surfaces.

STANDARD

plain rolled glass

Generally speaking, standard patterned glass here is to be construed as regular plain rolled glass as it comes from the rolling machines, with no additional treatment except possibly a surface Satinol or frosting. The glass has distinctive designs or patterns formed into one or both surfaces at the time the glass is produced. The resulting polish that occurs on both surfaces of the glass from this roll forming operation is known as "fire polish".

The surface patterns give the glass a semi-transparent appearance and thus afford varying degrees of translucency . . . from practically clear to almost totally obscure. By choice of patterns differing degrees of diffusion as well as obscurity may be obtained, giving the designer great freedom in choosing among the most desired characteristics. Greater obscurity, or privacy, may be achieved by further treating the fire-polished surface to produce a Satinol, frosted, or sandblasted surface.

Standard patterned glass meets the many requirements for a decorative or functional material with enduring beauty. The wide variety of patterns and surface finishes available provides effective solutions for the glazing problems of the architect, designer, builder and contractor.

DESIGNED SATINOL®

Some standard patterned glasses may be further enhanced by the additional surface treatment of Designed Satinol. On lighter glass patterns the Designed Satinol becomes the major decorative motif. On others the patterns and designs complement each other. See page 13.



Reception Lobby, Electric Controller & Mfg. Div. of Square D Company, Cleveland, Ohio.
Architects: A. E. Rowe & Associates.



Reception Lobby, Bert Mills, Inc., St. Charles, Ill.
Architects: Burgess, Stevens & Purdy, Chicago.



Offices, Federated Department Stores, Inc., Cincinnati, Ohio.
Architects: Potter, Tyler, Martin & Roth. Designers: Raymond Loewy Associates

pattern	thickness inches	wt./lbs. per sq. ft.	light trans. %	finish and maximum size manufactured● standard	satinol ▲	frosted ▲
Beadex	7/32	2-3/4	90.0	60 x 136	60 x 136 [1]	
Beadex, Matte	7/32	2-3/4	82.0	60 x 136	60 x 136 [1]	
Corrugated	1" overall			47½ x 144	47½ x 144 [1]	
Diffusex	1/8 7/32	1-3/4 2-3/4	87.6 87.6	60 x 132 60 x 136	60 x 136	
Doublex	7/32	2-3/4	87.0	60 x 136	60 x 136 [1]	
Finetex	1/8	1-3/4	89.0	60 x 132		48 x 132
Florex	1/8	1-3/4	86.2	48 x 132		
Flutex	7/32	2-3/4	89.0	60 x 136	60 x 136	
Flutex, textured	7/32	2-3/4	87.2	60 x 136	60 x 136	
Hammered	1/8 7/32 3/8	1-3/4 2-3/4 5	90.0 90.0 90.0	60 x 132 60 x 136 60 x 100	60 x 136 60 x 100	48 x 132 48 x 136 48 x 100
Industrex	1/8 7/32	1-3/4 2-3/4	88.2 88.2	60 x 132 60 x 136	60 x 136	48 x 132 48 x 136
Linex	1/8 7/32	1-3/4 2-3/4	80.0 80.0	60 x 132 60 x 136	60 x 136 [1]	48 x 132 48 x 136
Linex, textured	1/8 7/32	1-3/4 2-3/4	78.5 78.5	60 x 132 60 x 136	60 x 136 [1]	
Louvrex	7/32	2-3/4	90.4	60 x 136	60 x 136	
Luminex	1/8 7/32	1-3/4 2-3/4	88.4 88.4	60 x 132 60 x 136	60 x 136	48 x 132 [2] 48 x 136 [2]
Muralex	1/8 7/32 3/8	1-3/4 2-3/4 5	86.0 86.0 86.0	60 x 132 60 x 136 60 x 100	60 x 136 60 x 100	
Pebblex	1/8 7/32	1-3/4 2-3/4	79.7 79.7	60 x 132 60 x 136	60 x 136 [1]	
Pointex	1/8 (thin)	1-1/2	92.5	60 x 120		48 x 120 [2]
Randex	7/32	2-3/4	82.0	60 x 136	60 x 136 [1]	
Reglex	1/8 7/32	1-3/4 2-3/4	52.3 52.3	60 x 132 60 x 136	60 x 136 [1]	
Ribbed	1/8 7/32 3/8	1-3/4 2-3/4 5	84.4 84.4 84.4	60 x 132 60 x 136 60 x 100	60 x 136 60 x 100	48 x 132 48 x 136 48 x 100
Skytex	1/8 7/32	1-3/4 2-3/4	78.9 78.9	48 x 132 48 x 136	48 x 136 [1]	44 x 132 [1] 48 x 132 [2] 44 x 136 [1] 48 x 136 [2]
Tobex, wired ●	1/4	4	82.0	48 x 144		
Velvex	1/8 7/32	1-3/4 2-3/4	89.0 89.0	60 x 132 60 x 136	60 x 136	48 x 132 [2] 48 x 136 [2]

▲ Available in one or two sides unless indicated as follows:
[1] One side only [Satinol on smooth side, frosted on patterned side].
[2] Two sides only.
● Type of installation and service expected will determine light size—technical information available.

HUETEX®

tempered facing glass

A low-maintenance, high-quality spandrel material of striking beauty plus insulating value. Huetex is tempered glass used as interior paneling, wainscoting or facing material. Huetex is also used as a spandrel glass in curtain walls (see pages 18 and 19 for detailed information).

colors: Huetex is available in 12 standard colors. Special colors can be matched, within the range of ceramic enamel manufacturers' limits.

pattern: Finetex pattern is essentially nondirectional. However, for most uniform appearance, all sizes should be ordered for width or height dimension in the same direction.

dimensional data: Thickness —5/16" (.295 to .330).

Maximum size and pattern direction—60" perpendicular to, and 96" parallel to direction of rolling.

Exact dimensions are required on orders because Huetex cannot be cut or ground after manufacture.

framing and glazing: Members must be of sturdy construction and rigid enough to provide uniform support to panel perimeters, and to prevent transmittal of structural loads or stresses to the glass. Design must provide for: adequate expansion joints; means of adjustment during installation; glazing channels; individual panel removal; and weep holes for condensation.

Panels must be glazed with resilient or nonhardening elastic material to provide an adequate cushion between panels and channel walls. Panels should rest upon accepted setting blocks with clearance between all other edges and frames.

TEMPERED GLASS | 5/16" thick, is textured on the weathering side to subdue bright reflections.

CERAMIC ENAMEL | fused to the glass adds permanent beauty in the color desired.

ALUMINUM | welded to the back surface by our exclusive Huetex process, protects the enamel, reflects heat, insulates.



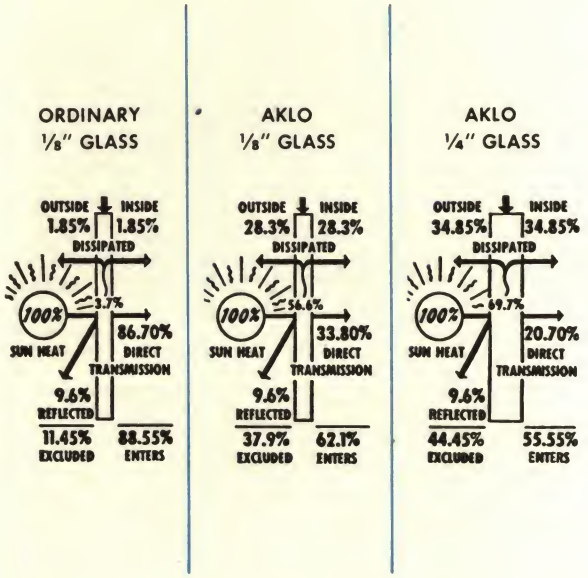
AKLO

heat absorbing glass

AKLO is a blue-green heat absorbing and glare reducing glass. It absorbs most of the sun's heat, admits an adequate amount of daylight, yet substantially reduces glare and eyestrain. Maximum daylight transmission is in that portion of the spectrum most restful to the eyes—blue, green and yellow.

minimum expansion: Any heat-absorbing glass becomes much hotter than ordinary glass. Sudden cooling by rain or hail may cause breakage, unless the glass is of low expansion. AKLO has this all-important property of resisting thermal shock, 25% greater than regular diffusing patterned or wired glass. Result is lower maintenance costs.

solar heat reduction: By its special composition, AKLO Glass absorbs the heat-loaded rays of the sun. This heat is dissipated, much of it externally, so that incoming solar heat is substantially reduced. Result is a cooler interior—more comfort, less material spoilage, lower air-conditioning costs.



pattern	type	thickness, inches	light trans. %	shipping wt./lbs. per sq. ft.	finish and maximum size manufactured● standard	finish and maximum size manufactured● frosted ▲
Hammered	wired	1/4	48.5	3½	48 x 144	44 x 136 (1) 48 x 144 (2)
	not wired	1/8	65.5	1¾	48 x 132	44 x 120 (1) 48 x 132 (2)
		1/4	54.5	3	———	44 x 132 (1) 48 x 136 (2)
Finetex	wired	1/4	48.5	3½	48 x 144	44 x 136 (1) 48 x 144 (2)
	not wired	1/8	65.5	1¾	48 x 132	44 x 120 (1) 48 x 132 (2)
		1/4	54.5	3	———	44 x 132 (1) 48 x 136 (2)
Skytex	wired	1/4	37.5	3½	48 x 60	44 x 136 (1) 48 x 144 (2)
Polished	wired	1/4	54.2	3½	48 x 60	———

type	total heat of sun through glass: radiated by glass	transmitted through glass	total heat through glass	ratio of heat through glass to light transmission
Hammered pattern				
1/8" AKLO—unwired	28.30%	33.80%	62.10%	1:1.87
1/8" ordinary—unwired	1.85	86.70	88.55	1:1.03
1/8" Frosted AKLO—unwired	34.00	23.00	57.00	1:1.87
1/4" AKLO—unwired	34.85	20.70	55.55	1:2.58
7/32" ordinary—unwired	3.70	83.00	86.70	1:1.07
1/4" AKLO wired	35.70	19.00	54.70	1:2.57
1/4" ordinary—wired	5.60	79.20	84.80	1:1.07
1/4" Frosted AKLO	38.70	13.60	52.30	1:2.58
Polished (for comparison)				
1/8" AKLO	27.00	38.00	65.00	1:1.87
1/8" ordinary	1.85	88.30	90.15	1:1.03
1/4" AKLO	35.50	21.00	56.50	1:2.57
1/4" ordinary	3.75	84.50	88.25	1:1.07

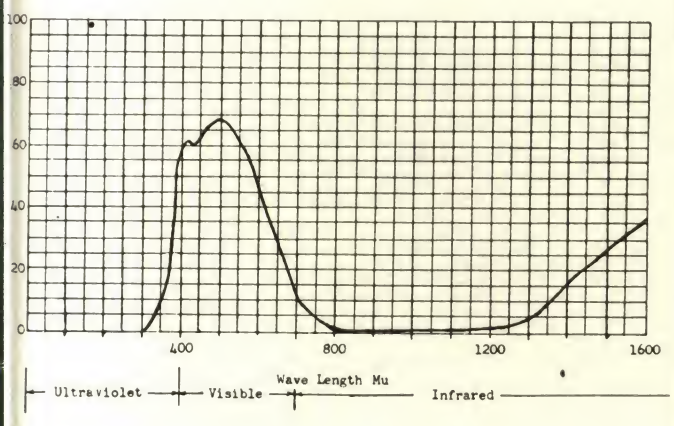
▲ (1) one side only on smooth side.
(2) two sides only.

● Type of installation and service expected will determine light size—technical information available.



Bloom Township High School Field House, Chicago Heights.
Architects: Schmidt, Garden & Dickson—Chicago.

spectrophotometric chart



design considerations

It is generally known that any type of glass will eventually rupture when heat is applied directly to one portion while the other portion of the same light of glass remains cool. These conditions may exist in the use of AKLO. It is possible for sections of a light of AKLO exposed to the sun to become as hot as 150° to 160°F. whereas the shaded portions of the glass may remain near the temperature of the air. Where such conditions exist, that is, where a small portion of a light of AKLO is shaded by overhang, pilasters, etc., and the remainder of the glass is exposed to the sun, the size of the glass used may be of critical importance. AKLO Glass subjected to such adverse conditions will function properly when the sizes are limited. Sizes can be increased by using special glazing precautions.

For complete design data and installation details, write for AKLO technical bulletin A-1-57.

glazing recommendations

Failure to adhere to recommended glazing practices definitely affects the functioning of heat-absorbing glass, and these basic recommendations should be followed:

A. Allow minimum clearance of ⅛″ between the edge of glass and framing members at all points.

B. Handle glass carefully to avoid striking its edges against the frame, etc., which could cause checks, runs, or chips. Also make sure that all edges are clean cut. Nipping edges should never be permitted as it may create checks or chips which may later lead to thermal breakage.

C. Make sure that no mechanical strain is put on the glass by out-of-square framing, out-of-plumb framing, or improper placing of glazing clips. Lead or pressure treated hardwood setting blocks should always be used except for small steel sash sizes.

D. Use a permanently elastic glazing compound. Do not dilute the glazing compound against the manufacturer's recommendation. Glazing compounds that set up hard hold the glass too rigidly and will not allow for expansion and contraction.

E. In skylights and where glazing stops are used, make sure that there is enough compound to provide a resilient setting and to prevent metal-to-glass contact.

By closely adhering to these recommendations, the glass is, in effect, floating in the frame.

HUEWHITE®

glare-reducing glass

Huewhite is not a heat-absorbing glass. It was developed for use where light diffusion with maximum glare reduction and true color transmission are desired. It is a translucent white and is used, (for light control and decorative purposes), in day lighting of schools, work shops, offices, studios, museums and similar installations.



Huewhite delivers very wide light distribution that is almost uniform down to incidence of 15 degrees. It scatters daylight appreciably even down to an angle of 5 degrees. Brightness is lower than Frosted AKLO ¼" in a "head-on" view.

Available only in Muralex pattern in the following thicknesses and maximum sizes:

¼"—maximum size 48" x 132"
5/16"—maximum size 60" x 132"
¼" wired—maximum size 48" x 132"

Huewhite is also made in Corrugated with the same sizes and specifications as regular Corrugated glass.

SECURIT®

heat-tempered glass

Securit glass is made by subjecting Patterned Glass to a special process of heat treatment and rapid cooling—creating a highly compressed zone at the outer surface. The tensile strength of Securit, as determined by its modulus of rupture, is from 3 to 5 times greater than non-heat-tempered glass of similar pattern and thickness. When the limit of strength is reached, Securit disintegrates into small, round, relatively smooth particles. (Patterned glass ⅛" thick, wired glass and Huewhite cannot be Securit.) Securit provides greater strength and shock resistance as well as resistance to temperature variation.

uses: Architects and designers are constantly finding new uses for Securit because of its special qualities, such as:

Office doors, partitions • Bath, shower enclosures • Windows liable to breakage • Ceiling sash, sub-skylights • Balustrades • Shelving • Guards subjected to intense heat • Lighting fixtures • Tops for cutting tables • Push plates and kick plates.

dimensions

pattern	light trans. %	thickness, inches	shipping wt./lbs. per sq. ft.	finish and maximum size manufactured● standard	Satinol▲	frosted▲	recommended maximum light area/ft.
Beadex	90.0	7/32	2-3/4	60 x 88	60 x 88 [1]	60 x 88	20
Beadex, matte	82.0	7/32	2-3/4	60 x 88	—	—	20
Diffusex	87.6	7/32	2-3/4	60 x 88	60 x 88	60 x 88	20
Flutex	89.0	7/32	2-3/4	60 x 88	60 x 88	—	20
Flutex, texture	87.2	7/32	2-3/4	60 x 88	—	—	20
Hammered	90.0 90.0	7/32 3/8	2-3/4 5	60 x 88 60 x 88	60 x 88 60 x 88	60 x 88 60 x 88	20 36
Industrex	88.2	7/32	2-3/4	60 x 88	60 x 88	60 x 88	20
Linex	80.0	7/32	2-3/4	60 x 88	60 x 88	60 x 88	20
Linex, texture	78.5	7/32	2-3/4	60 x 88	—	—	20
Louvrex	90.4	7/32	2-3/4	60 x 88	60 x 88	—	15
Luminex	88.4	7/32	2-3/4	60 x 88	60 x 88	60 x 88	20
Muralex	86.0 86.0	7/32 3/8	2-3/4 5	60 x 88 60 x 88	60 x 88 60 x 88	— —	20 36
Pebblex	79.7	7/32	2-3/4	60 x 88	60 x 88 [1]	—	20
Randex	52.3	7/32	2-3/4	60 x 88	60 x 88 [1]	—	15
Reglex	52.3	7/32	2-3/4	60 x 88	60 x 88 [1]	—	20
Ribbed	84.4 84.4	7/32 3/8	2-3/4 5	60 x 88 60 x 88	60 x 88 60 x 88	60 x 88 60 x 88	20 36
Skytex	78.9	7/32	2-3/4	48 x 88	48 x 88 [1]	48 x 88	15
Velvex	89.0	7/32	2-3/4	60 x 88	60 x 88 [1]	60 x 88	20

▲ Satinol available in one or two sides unless indicated as follows:
[1] One side only on smooth side.
Frosted available on two sides only.
● Type of installation and service expected will determine light size—technical information available.

WIRED

fire-retardant glass

A continuous process wired glass wherein the mesh is chromium dipped to insure both clean wire and firmer adhesion of the glass to the wire. To insure greater strength, wire is embedded as closely as possible to the center of the glass.

approved fire retardant: Wired glass is an approved fire retardant. Rules of the National Board of Fire Underwriters limit the size of wired glass which can be glazed in openings exposed to fire hazards. In no case shall the unsupported area of the glass measure more than 48 inches in either dimension or exceed 720 square inches (5 sq. ft.). Typical maximum sizes which satisfactorily meet that requirement are 15 x 48, 18 x 40, 20 x 36 and 24 x 30 inches. Wired glass used for this purpose must be set in non-flammable materials.

For openings which are not subject to N.B.F.U. rules, maximum satisfaction will be obtained by limiting length of the glass to 60 inches.

Wired glass is also available in AKLO, see pages 6 and 7.



Nuweld® Mesh.

dimensions

pattern	light trans. %	thickness, inches	shipping wt./lbs. per sq. ft.	finish and maximum sizes manufactured● standard	Satinol▲	frosted▲
Finextex Hex.	83.0	¼	3½	48 x 144	48 x 144	44 x 132(1) 48 x 132(2)
Hammered Hex. or Nuweld	84.0	¼	3½	48 x 144	48 x 144	44 x 132(1) 48 x 132(2)
		⅜	5	48 x 100	48 x 100	44 x 100(1) 48 x 100(2)
Industrex Hex.	82.2	¼	3½	48 x 144	—	44 x 132(1) 48 x 132(2)
Luminex Hex.	82.4	¼	3½	48 x 144	48 x 144	48 x 132(2)
Polished Hex.	84.0	¼	3½	60 x 144	—	—
Polished Nuweld	84.0	¼	3½	60 x 144	—	—
Ribbed Hex. or Nuweld	78.4	¼	3½	48 x 144	48 x 144	44 x 132(1) 48 x 132(2)
		⅜	5	48 x 100	48 x 100	44 x 100(1) 48 x 100(2)
Skytex Hex.	72.9	¼	3½	48 x 144	48 x 144(1)	44 x 132(1) 48 x 132(2)
Tobex Hex.	82.0	¼	3½	48 x 144	—	—

● Type of installation and service expected will determine light size —technical information available.

▲ Available in one or two sides unless indicated as follows:
(1) One side only [Satinol on smooth side, frosted on patterned side].
(2) Two sides only.

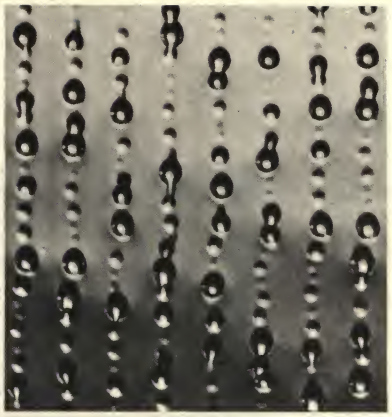
Hexagonal Mesh.



BEADEX

Beaded, or water drop, shaped linear pattern, simulating beaded screen. For decorative effect in partitions and backdrops. Satinol finish, smooth side only, increases obscurity.

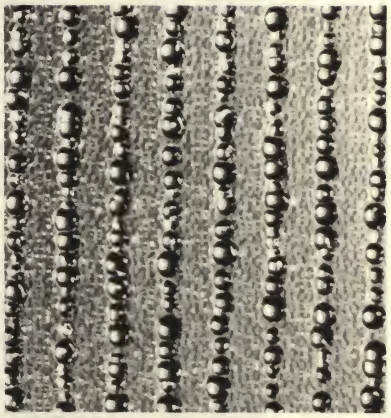
Available standard only.



BEADEX, MATTE

Beadex pattern on one surface, matte finish on the other. Gives a sparkling effect, especially in direct light, with very good diffusion.

Available standard only.

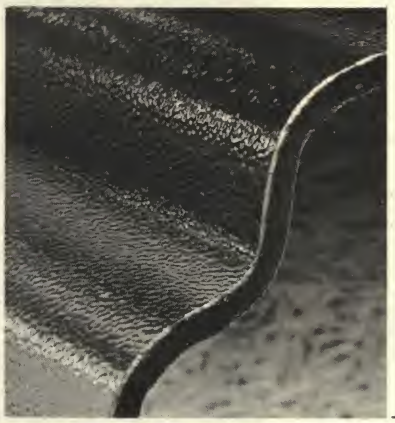


CORRUGATED

Conforms to Federal Specification DD-G-451a; deep angle corrugation — 2½" pitch; ⅜" — ¾₄" thick, overall thickness 1" — ⅛". Muralex pattern both surfaces, one sharp, other flattened slightly to provide a matte finish cutting surface.

Available standard or Huewhite.

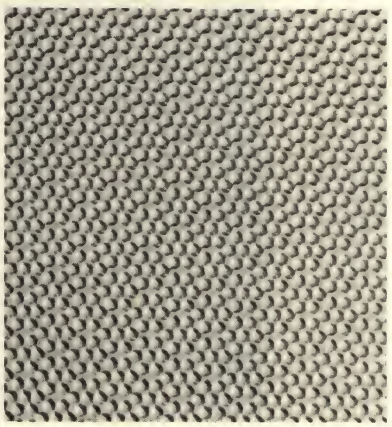
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DIFFUSEX®

Small, slightly elevated lenses provide uniform illumination, moderate angle of diffusion. Lenses are spaced to avoid dirt-collecting pockets. Easily cleaned.

Available standard only.

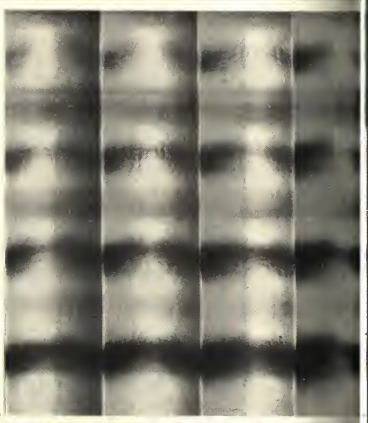


DOUBLEX®

A 1" checkered pattern with flutes on one surface running at right angles to the corrugations on other surface. Very good diffusion and obscurity, especially when Satinol-finished. Sets up striking light patterns.

Available standard only.

(half-size)



FINETEX®

Fine-textured pattern for general glazing — provides medium distribution of light and ease in cleaning.

Available standard, AKLO, Huetex or wired.



FLOREX®

Graceful floral pattern of unusual brilliance.

Available standard only.

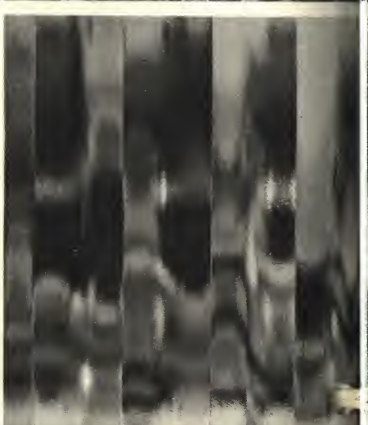


FLUTEX®

1" convex flutes, sharp definitive pattern. Relatively transparent. Satinol finish increases obscurity and diffusion.

Available standard only.

(half-size)



FLUTEX®, TEXTURED

Flutex pattern one surface, shallow over-all texture other surface. Improves obscurity and diffusion over regular Flutex.

Available standard only.

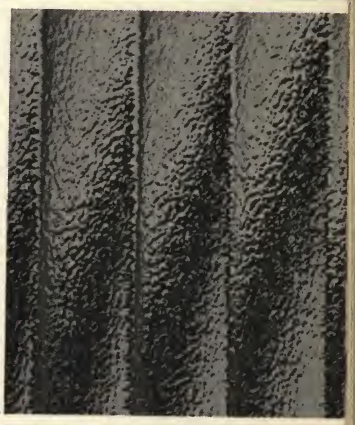
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LINEX®, TEXTURED

Linex pattern one surface, shallow, over-all texture other surface. Improves obscurity and diffusion over regular Linex.

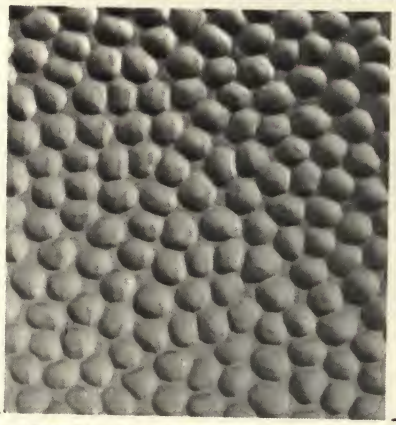
Available standard only.



HAMMERED

An over-all pattern of raised, adjacent lenses that diffuse light at a moderate angle in all directions.

Available standard, AKLO or wired.



LOUVREX®

Alternate 1" angular planes resemble louvers in Venetian blinds. Relatively transparent. Satinol finish increases obscurity and diffusion.

Available standard only.

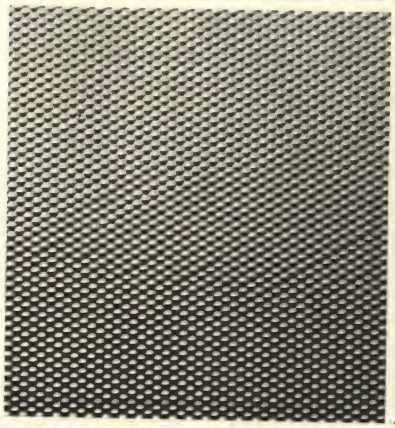
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INDUSTREX®

Tiny lens-shaped figures diffuse light over a wide area. Easily cleaned.

Available standard or wired.



LUMINEX®

Almost transparent, high light transmission but only slight diffusion. Excellent for glazing where maximum light is required.

Available standard or wired.



LINEX®

½" concave flutes, sharp definite pattern. Relatively transparent in standard rolled fire finish (clear). Satinol finishes increase obscurity and. diffusion. Frosted finishes not recommended for decorative uses, partitions, etc.

Available standard only.



MURALEX®

Finely engraved, fairly discrete over-all pattern, medium distribution of light at moderate angle. Rich looking, easy to clean.

Available standard or Huewhite.



PEBBLEX®

Deeply imprinted, irregular pebble design. Highly obscure. Unusually brilliant appearance. Light diffused at wide angle.

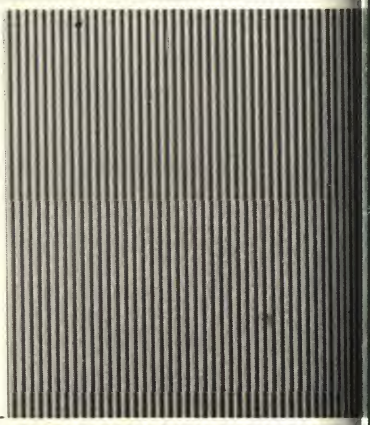
Available standard only.



RIBBED

Approximately twenty-one fine parallel ribs per inch spread the light along one axis, perpendicular to ribs.

Available standard or wired.



POINTEX®

Nearly transparent over-all pattern of tiny bosses of irregular size. A thin, non-diffusing glass.

Available standard only.



SKYTEX®

Eight parallel ribs per inch diffuse light perpendicular to direction of ribs and drain off condensation. Usually glazed with ribs vertical.

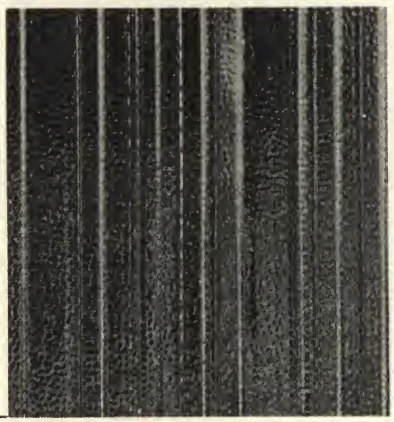
Available standard, AKLO or wired.



RANDEX

Straight parallel, random width and random spaced ribs one surface, matte finish on other surface. Relatively obscure, high brilliance pattern, excellent for decorative and striking effects. Satinol finish increases obscurity and diffusion.

Available standard only.



TOBEX®, WIRED

A figured, wired glass that diffuses light in all directions. One surface plain, other covered with closely spaced, convex, lens-like bosses. Used for skylights in tobacco warehouses, etc., where evenly distributed light is important.

Available wired only.



REGLEX®

Sixty-four pyramid-shape indentations to the square inch diffuse light very well in a cross-shape light pattern. Highly obscure.

Available standard only.



VELVEX®

A shallow pattern glass, only slightly diffusing. Satinol finish adds obscurity and excellent diffusion.

Available standard only.



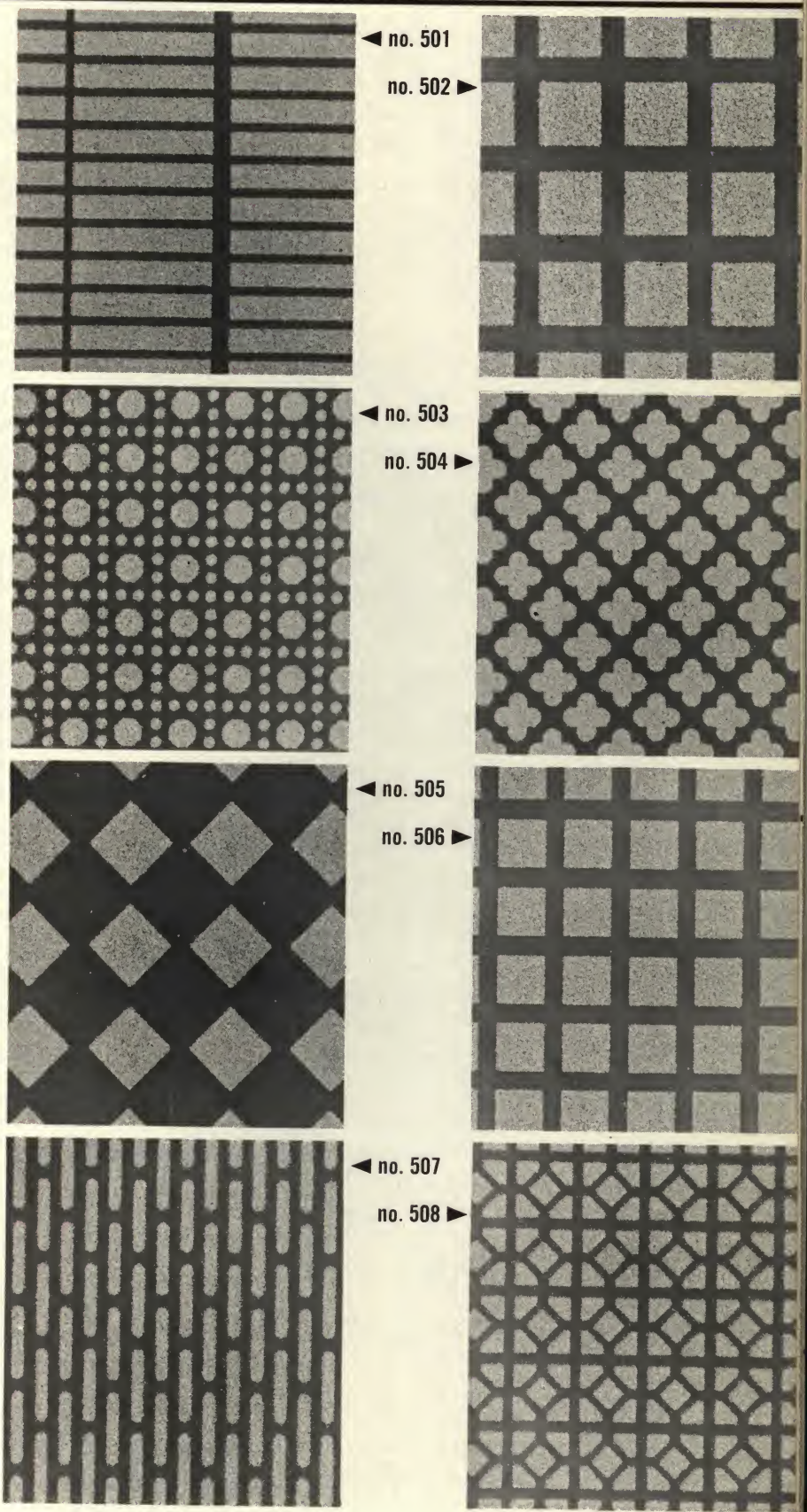
DESIGNED SATINOL®

Some standard patterned glasses may be further enhanced by the additional surface treatment of Designed Satinol. On lighter glass patterns the Designed Satinol becomes the major decorative motif. On others the patterns and designs complement each other. When specifying give type, pattern and design by name and number. Thus: "Standard Muralex 3/32" Designed Satinol No. 506"

Designed Satinol is available in standard type, 3/32" thickness, one side only in the following patterns: (illustrated half size)

pattern	designs available
Flutex	no. 504 no. 507 •
Muralex	all designs
Industrex	all designs
Linex	no. 503 * no. 504 no. 506 * no. 507 • no. 508 *
Louvrex	no. 504 no. 507 •
Luminex	all designs

* Large area only.
• Axis of pattern parallel to axis of texture.



American-Saint Gobain is nationally recognized by architects and builders as the quality leader in the production of sheet glass. In its varied forms, sheet glass is probably the most used type of glass, including window glass, both double and single strength, as well as heavy crystal sheet for larger openings. On the following pages are described the various types of sheet glass sold by American-Saint Gobain, including Lustraglass, Lustracrystal, Lustragray, and so on.

when ordering or specifying: All sheet glass which has not been mechanically ground and polished has some inherent wave or distortion, which is usually more prominent in one direction of the glass than it is in the other.

The wave in Lustraglass, Lustracrystal or Lustragray is so slight that it can be disregarded when glazing up to 50 united inches (width plus height). However, in larger sizes, where the best possible appearance is desired, we recommend that the glass be glazed with the wave running parallel to the ground.

To insure that the wave runs in the direction desired, follow these ordering instructions:

When the customer wants the line of distortion to run with the width for any size glass, including under 50 united inches, the width dimension should be listed first. For example: order 48″ x 24″, instead of 24″ x 48″.

If the customer wants the wave to run with the width dimensions, as in the case of casement windows where the glass would be glazed vertically rather than horizontally, order 24″ x 48″ C/O, or Cut-to-Order. This applies to all sizes.

For short form specifications see back cover.

LUSTRAGLASS®

clear, window glass

qualities: Lustraglass transmits both visible light and some ultraviolet. A special separation process for raw materials eliminates impurities in glass such as iron which gives the dull greenish cast found in most sheet glass. Lustraglass has a fire-polished, scratch resistant surface which gives an attractive, sparkling appearance. It is the most distortion-free sheet glass.

uses: Lustraglass is used for glazing windows, doors and storm sashes in all types of buildings for openings up to 5′ x 6′8″. Lustraglass has additional appeal where optimum daylighting is required.



Heathcote Elementary School, Scarsdale, N. Y.
Architects: Perkins & Will.

dimensions

strength types	maximum sizes united inches=L+W		thickness inches			lbs. per sq. ft.
	manufactured	opening	min.	max.	av.	
single	130	90	.087	.091	.095	1.183
double	140	120	.121	.125	.129	1.625

physical characteristics

strength types	*total visible light transmission	solar radiation transmission▲			
		*total incident ultraviolet	total incident infared	*total average daylight (visible light range)	total solar radiation
single	92.0%	77.8%	89.8%	91.8%	90.6%
double	91.9%	75.8%	89.6%	91.7%	90.3%

▲ Average radiant energy at normal incidence, with energy distribution equivalent to air mass equal 2.
* The sun's energy consists of 2.77% ultraviolet, 52.42% visible light and 44.80% infrared.

LUSTRACRYSTAL®

clear, heavy sheet glass

qualities: American Lustracrystal is an improved, high quality, heavy sheet glass available in thicknesses 3/16", 7/32" and 1/4". The features of superior clarity, minimum distortion, and a fire polished, lustrous, scratch resistant surface result in Lustracrystal's preference both for appearance and function.

It is with Lustracrystal that the quality control methods used in the production of all our sheet glasses are supremely important. The glass is checked as it is produced, and on a regular schedule, both with Shadowgraphs (developed and patented by American-Saint Gobain) and by edge-lighting to assure you that the highest quality is maintained.

uses: American Lustracrystal is used to glaze windows, sliding glass doors, and storm sash up to a maximum size of 7 feet by 10 feet. It is also ideal for furniture tops, shelving, jalousies, entrance lobbies, glass stairwalls, etc.



Augusta-Richmond County Municipal Bldg., Augusta, Ga.
Architects: Scroggs & Ewing, and Hulke & Wade.



Ordinary sheet glass.



Lustracrystal.

dimensions

strength types	max. size *width	max. size length	thickness inches min.	thickness inches av.	thickness inches max.	lbs. per sq. ft.
3/16"	84"	120"	.187	.193	.199	2.509
7/32"	84"	120"	.212	.218	.224	2.834
¼"	84"	120"	.240	.248	.256	3.224

*Widths greater than 84" available in limited quantity from Eastern Factory.

physical characteristics

strength types	total visible light transmission	solar radiation transmission▲ *total incident ultraviolet	*total incident infared	*total average daylight (visible light range)	total solar radiation
3/16"	91.8%	68.8%	88.9%	91.2%	89.6%
7/32"	91.7%	66.4%	88.6%	91.1%	89.3%
1/4"	91.6%	63.5%	88.3%	90.9%	89.0%

▲ Average radiant energy at normal incidence with energy distribution equivalent to air mass equal 2.
* The sun's energy consists of 2.77% ultraviolet, 52.42% visible light and 44.80% infrared.

LUSTRAGRAY®

neutral gray, glare-reducing sheet glass.

glare is a result of extreme brightness contrasts in the field of vision. Lustragray aids the architect in balancing lighting levels, thereby minimizing eye strain and fatigue. With Lustragray, this is accomplished without sacrificing vision and while providing adequate and controlled natural daylighting for interiors.

heat absorption provides a reduction in transmission of solar energy. No special glazing requirements necessary.

clear glass vision from interior creating a spacious atmosphere conducive to learning and top task efficiency.

exterior opacity sufficient to have a skin wall effect on the building and provide increased privacy.

neutral shade compliments all colors and removes all restrictions on interior decorations.



Versailles Apartments, Denver, Col.
Architects: Huntington, Brelsford and Childress.

dimensions

strength types	maximum size		thickness—inches			lbs. per sq. ft.
	width	length	minimum	average	maximum	
double	60″	80″	.121	.125	.129	1.625
3/16″	72″	120″	.187	.193	.199	2.509
7/32″	72″	120″	.212	.218	.224	2.834
1/4″	72″	120″	.245	.253	.261	3.289

physical characteristics

strength types	total visible light transmission	solar radiation transmission▲			
		*total incident ultraviolet	*total incident infrared	*total average daylight (visible light range)	total solar radiation
double	71.1%	68.4%	79.2%	72.6%	75.5%
3/16″	61.8%	63.7%	73.4%	64.2%	68.9%
7/32″	58.8%	63.0%	71.7%	61.8%	66.3%
1/4″	55.0%	61.0%	68.5%	57.7%	63.1%

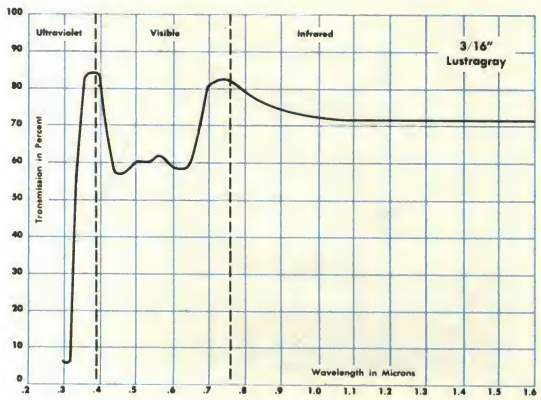
▲ Average radiant energy at normal incidence with energy distribution equivalent to air mass equal 2.

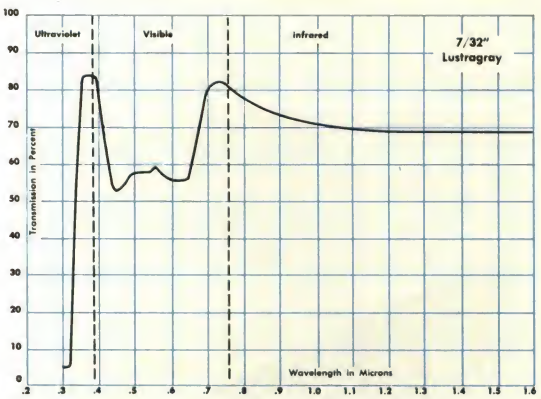
* Sun's energy consists of 2.77% ultraviolet, 52.42% visible light and 44.80% infrared.

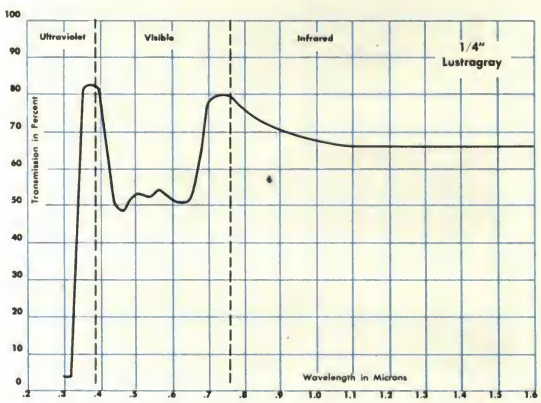
Kent State University Library, Kent, Ohio.
Architects: Fulton, Krinsay, & Dela Motte.



radiant energy







SUPRATEST®

clear, laminated safety glass

qualities and uses: Supratest is a laminated safety glass developed to meet the exacting requirements of the automotive industry. Because of its high resistance to fracture and non-shattering characteristics, Supratest has found a definite application wherever glazing specifications require the utmost in safety. Supratest is used in schools, gymnasiums, cafeterias, auditoriums, classrooms facing playground areas, around door entrances, etc. It also has excellent application in hospitals and other types of buildings.

Supratest is laminated with only "A" quality Lustraglass (clear) or Lustragray (gray).



Western Pennsylvania Psychiatric Hospital.
Architects: Raymond M. Marlier.

dimensions

type▲	"nominal" thickness in inches (std. .015" thick plastic sheet)			estimated average shipping weight lbs. per sq. ft.
	min.	max.	av.	
single sheet	3/16	13/64	7/32	2.75
standard sheet	7/32	15/64	1/4	3.0
double sheet	1/4	17/64	9/32	3.33
plate	7/32	1/4	9/32	3.33

▲ Special thicknesses from other combinations will receive individual attention.

GLASS DOORS

The Securit Glass Door is made of ⅜″ thick heat-tempered Muralex patterned glass. The pattern is on both surfaces which provides a softly diffused light without sacrificing privacy. Since the glass is tempered the door is 3 to 5 times stronger than non-tempered glass of the same thickness. The Securit Door is available in two basic styles: Style M and Style R.

Securit Glass Doors cannot be cut, ground, or drilled after manufacture; therefore, the exact size and necessary drilling should be ordered. There is economy in standard sizes, however non-standard doors are readily available in widths up to 40″ and heights up to 88″.

The door can be used either right or left hand, since the glass is patterned on both surfaces. Doors can be furnished with Satinol finish on both surfaces, or, for maximum obscurity and privacy, can be ceramic enameled on both surfaces. Doors or sidelights can be supplied with a cut-out for field application of a Peabody Letter Drop #228 with inside hood.

For additional information and details, see Sweet's Arch. File $\frac{16d}{Am}$, or write for bulletin "Securit Glass Doors".



SPANDREL GLASSES

Huetex® is a special Blue Ridge patterned glass made for spandrel construction. The color is obtained by a fused-on coating of sunfast ceramic enamel over which a layer of metallic aluminum is then applied. The aluminum surface acts as a heat reflector as well as giving protection to the ceramic enameled surface.

During manufacturing, the entire sheet of glass is fully tempered to give it three to five times the strength of annealed glass of the same size and thickness.

Blue Ridge Huetex may be used with a wide variety of framing systems and forms of insulation. You can use a choice of metals in rolled or extruded shapes.

In addition to Huetex the Blue Ridge wired glasses have had wide acceptance as a spandrel material. Since these glasses can be cut by the glazier they are especially suitable where exact glazing sizes are difficult to obtain sufficiently far enough in advance to allow for factory fabrication. See page 9 for detailed information on wire glass.



National Lock Co., Rockford, Illinois.
Architects: Ragnar Benson and Associates.

style R

This Securit Door is the latest addition to the line, featuring a narrow aluminum rail at the top and bottom of the glass. All of the hardware required for installation is mounted within the rails, leaving only the floor and top jamb pivots for field installation.

sizes: up to 40″ in width and 88″ in height.

hardware: supplied in satin finish anodized aluminum only. Surface mounted closer available. Thirteen different hardware functions give a wide selection to meet requirements of various uses. Two types of locks are available, side jamb or threshold. Locks are supplied with door and are mounted in the rail. A push-pull bar of modern design is furnished (with glass drilled for application), but not mounted on the door when shipped.

Note—The style R door is shipped with complete parts, ready for installation.

style M

The style M Securit Door is supplied with special butt hinges, and a metal lock housing to accommodate most 2⅛″ bore, flat face cylindrical locks. No lock is supplied—buyer purchases lock of his choice from his local hardware distributor.

sizes: eight standard sizes, for both standard and heavy duty lock; non-standard sizes up to 40″ in width and 88″ in height.

hardware: available in either dull chrome (US26D) or dull bronze (US10) finish. Satin finish stainless steel hinges are available on special order. Mounting plates for surface mounted closers can be supplied.

For short form specifications see back cover.

colors: Huetex is available in 12 standard colors. Special colors can be matched, within the range of ceramic enamel manufacturers' limits.

pattern: Finetex pattern is essentially nondirectional. However, for most uniform appearance, all sizes should be ordered for width or height dimension in the same direction.

dimensional data: Thickness —5/16″ (.295 to .330).

Maximum size and pattern direction—60″ perpendicular to, and 96″ parallel to direction of rolling.

Exact dimensions are required on orders because Huetex cannot be cut or ground after manufacture.

For additional information and details, see Sweet's Arch. File $\frac{3e}{Am}$, or Sweet's Industrial File $\frac{3b}{Am}$, or write for Huetex technical bulletin H-1-57.

framing and glazing: Members must be of sturdy construction and rigid enough to provide uniform support to panel perimeters, and to prevent transmittal of structural loads or stresses to the glass. Design must provide for: adequate expansion joints; means of adjustment during installation; glazing channels; individual panel removal; and weep holes for condensation.

Panels must be glazed with resilient or nonhardening elastic material to provide an adequate cushion between panels and channel walls. Panels should rest upon accepted setting blocks with clearance between all other edges and frames.

For short form specifications see back cover.

SPECIAL GLASSES AND PRODUCTS

The role of flat glass as a product design material is an important one. Many everyday products —in the home, in commerce, in industry—use flat glass, and many other products might be improved by the use of glass. From the smallest flashlight to the largest atomic pile, through the gamut of lighting fixtures, appliances, all kinds of transportation—rail, sea, and air, furnaces and ovens, scientific equipment, flat glass has manifold possibilities for design and use. It would be hard to name an hour in our lives when we do not come into contact with and depend on flat glass to make living easier and better.

American-Saint Gobain makes and sells many varieties of flat glasses whose uses are endless—not only architecturally but as components of useful products. Some are indicated here on these two pages and all of them are discussed in more detail in a special bulletin which is yours for the asking (Special Glasses, Sweet's Product Design File No. $\frac{3a}{Am}$). Any of our offices, listed on the back of this bulletin, or your nearest flat glass jobber or dealer will be glad to help with your product design problems, or write to us.

SUPRATEST®
(laminated safety glass)

Supratest consists of a lamination of two lights of "A" quality Lustraglass (clear sheet) or Lustragray (gray sheet) glass with a vinyl plastic inner layer. Supratest does not splinter on impact. When fractured, it holds together in a flexible mass that cushions the blow. Supratest also has a high resistance to fracture at low temperatures. It does not "let go" after long periods of service and will not discolor from constant exposure to sunlight.

Supratest was developed to meet the high safety requirements of the automotive industry and special applications.

TEMEDGE®

Temedge is a special kind of Patterned Glass for jalousies, counter dividers, shelving, and other specialized uses. It is rolled in strip widths from 3" to 6" with both long edges beautifully fire-polished in the forming process to match the glossy surface of the glass.

Temedge is ready to use as it comes from the rolling machine—no mechanical processing is needed—and the polished edges are always bright and attractive.

Temedge is economical. Rolled to specific width, it saves cutting and handling costs, also expensive edge work. Temedge is highly resistant to edge chipping and impact breakage. This too, adds to its economy in use.

Temedge is strong! This glass has strength against impact better than that of normally annealed glass with ground or penciled edges.

PLATE GLASSES

Plate glass is different from the other types of flat glass in that it is mechanically ground and polished. This operation imparts a fine optically true surface which makes the plate glass useful for glazing large openings and display windows, for mirrors, and more recently, for glass clad buildings.

American-Saint Gobain Corporation is now building, near Kingsport, Tennessee, a new plate glass factory. This plant will be finished by 1962. It will use the most recent manufacturing developments in twin grinding and twin polishing.

American-Saint Gobain presently acts as sales agent for several Saint Gobain plate glass plants in Western Europe. Practically all the plate glass sold by American-Saint Gobain is "twin ground", including ⅛ inch plate. It is recognized among

FEUREX® borosilicate glass

Feurex is a flat glass having great resistance to heat shock. Feurex can be used continuously at temperatures approaching 900°F. The temperatures at which the glass can be used, however, are usually less, in many applications, due to thermal stresses involved.

Recommendations may vary depending upon operational data such as temperature, pressure, environment (on both sides), mountings, gaskets, etc. When used for sight glasses, the temperature differential between the faces usually sets the maximum operating temperature at about 450°F.

RA-GRID® HEATER PLATE

A tempered sheet of patterned glass to which an aluminum coating, approximately .001 inch thick has been fused, together with connectors for electrical wiring.

The coating is applied by spraying hot glass with elemental aluminum, which fuses to the glass and takes the form of a grid, so that electricity must pass through many lineal feet of conductor to complete the circuit. It is then coated with a silicone base enamel, which withstands high operating temperatures, to protect it from abrasion in handling and atmospheric corrosion, as well as providing some electrical insulation.

The heat developed from the current passing through the aluminum resistance is conducted to the glass which in turn radiates. The resulting heat is infrared in nature closely resembling the sun's heat, though without ultraviolet rays.

LUSTRAWHITE®

Lustrawhite is a preferred glass for picture framing.

1. Highest transparency.
2. Minimum distortion—no waviness to detract from the symmetry of the picture.
3. True color transmission due to extreme purity of the glass.
4. Exacting tolerances—8/1000's of an inch or less.

Lustrawhite is available up to 130 united inches and has an average thickness .072.

BULB EDGE GLASS

Bulb Edge Glass has a rounded bulb-shape along one edge which gives it greater strength, making it an ideal glass for shelves, wind deflectors, counter dividers, etc.

thickness	length	width
single and double	12"–44" inclusive	2½"–4" inclusive
3/16" and 7/32"	12"–44" inclusive	3"–16" inclusive

THIN GLASS

Standard Microscopic and Lantern Slide, as the names imply, are used principally in laboratories and for scientific work. Photographic is used by photographic plate manufacturers and in various types of scientific instruments.

product	thickness			max. size
	nominal	decimal	tolerance	
standard microscopic	1/32"	.040	.002"	50 united inches
lantern slide	3/64"	.048	.002"	50 united inches
photographic	1/16"	.061	.004"	70 united inches

architects, builders, and mirror manufacturers as a quality plate . . . for surface parallelism, flatness, and high polish.

Colored plate glass is available from American-Saint Gobain in six standard colors: steel gray, light gray, smoked topaz, sapphire blue, pink and amber. Water-white, as well as heat absorbing plate, are available. Heavy plate in standard 5/16", 7/16", 1/2", 3/4" and 1" thickness round out the line.

As with the many types of sheet and patterned glasses, American-Saint Gobain offers the creative architect, designer or builder a multiplicity of plate glass products, to aid his creative working in the use of glass . . . for beauty . . . for function . . . for light control. Inquiries for special colors, special thicknesses, or for special uses are always welcome. Call any of our offices (listed at the end of the catalog)—or write to us.

SHORT FORM SPECIFICATIONS

PATTERNED GLASSES

All patterned (rolled, obscure) glass specified herein or shown on plans shall be ——— type, ——— inch thick, ——— pattern, ——— surface finish, —— color, and shall meet requirements of Federal Specifications DD-G-451a, made by American-Saint Gobain Corporation, New York, N. Y.

SHEET GLASSES

All sheet glass specified herein or shown on plans shall be ——— type, ——— inch thick (strength), ——— color, made by American-Saint Gobain Corporation, New York, N. Y. and shall meet requirements of Federal Specifications DD-G-451a. All glass shall be ordered and installed by the glazier to minimize the "wave".

GLASS DOORS

All tempered, patterned glass doors specified herein or shown on plans shall be —— style, —— hardware type, 3/8" thick, —— finish (color), Securit door(s) made by American-Saint Gobain Corporation. Each Door must be identified by the name Securit enamelled on the edge of the glass.

SPANDREL GLASSES

All glass specified herein or shown on plans for spandrels or curtain walls shall be Huetex (or wired ——) made by American-Saint Gobain Corporation, New York, N. Y.

special sales representatives

R. G. BISHIP
Kansas City District Office
Res. Phone: Taylor 6-3539
Dallas, Texas

O. D. HUNGERFORD
New York District Office
Phone: Pennsylvania 6-3460

P. L. KING (ARCHITECTURAL)
Fairview Park 26, Ohio
Res. Phone: Regent 4-3677

T. P. KRUPER (ARCHITECTURAL)
New York District Office
Phone: Pennsylvania 6-3460

E. J. MOHR
Atlanta District Office
Phone: Jackson 2-4928

B. J. SHAFFER
Chicago District Office
Res. Phone: Greenwood 2-1322
Mound, Minnesota

R. W. SPITZ
Chicago District Office
Res. Phone: Porter 6-0048
Bensonville, Illinois

C. A. VAN WINKLE
San Francisco District Office
Res. Phone: Emerson 4-3829
Seattle, Washington

J. E. WOODCOCK
San Franciso District Office
Phone: Yukon 6-1580

district sales offices

ATLANTA 3, GEORGIA
827 Candler Building, N. E.
Jackson 2-4928

BOSTON 16, MASSACHUSETTS
963 Park Square Building
Hubbard 2-0663

CHICAGO 6, ILLINOIS
2321-25 Chicago Daily News Building
Randolph 6-1146

DETROIT 2, MICHIGAN
5-155 General Motors Bldg.
Trinity 5-9460

KANSAS CITY 5, MISSOURI
Suite 2600 Power & Light Bldg.
106 W. 14th Street
Grand 1-3111

LOS ANGELES 5, CALIFORNIA
Suite 310 Continental Companies Bldg.
2975 Wilshire Blvd.
Dunkirk 1-2288

NEW YORK 36, NEW YORK
Room 2225—500 Fifth Ave.
Pennsylvania 6-3460

PITTSBURGH 22, PENNSYLVANIA
1207 Empire Bldg.
Court 1-2067

SAN FRANCISCO 11, CALIFORNIA
244 California Street
Yukon 6-1580

WILMINGTON, DELAWARE
Room 359 Delaware Trust Bldg.
900 Market Street
Olympia 5-4462



AMERICAN—SAINT GOBAIN CORPORATION

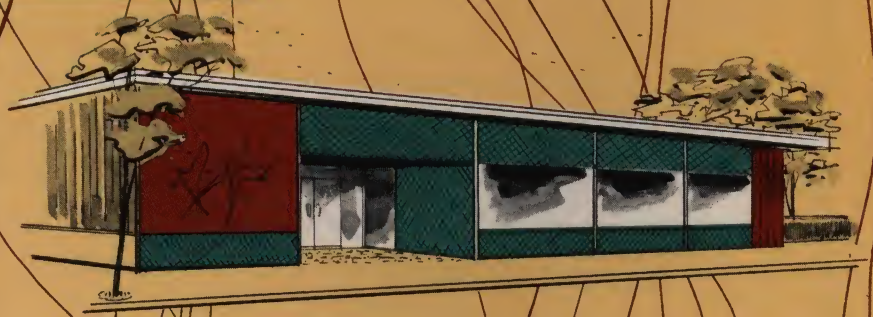
625 Madison Avenue, New York 22, N. Y.
Farmer's Bank Bldg., Pittsburgh 22, Pa.

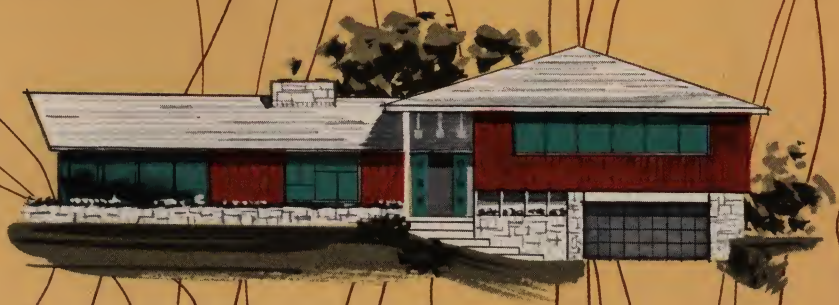
A new concept in architectural design . . .



GLAS-WICH®

The most beautiful glass in the world

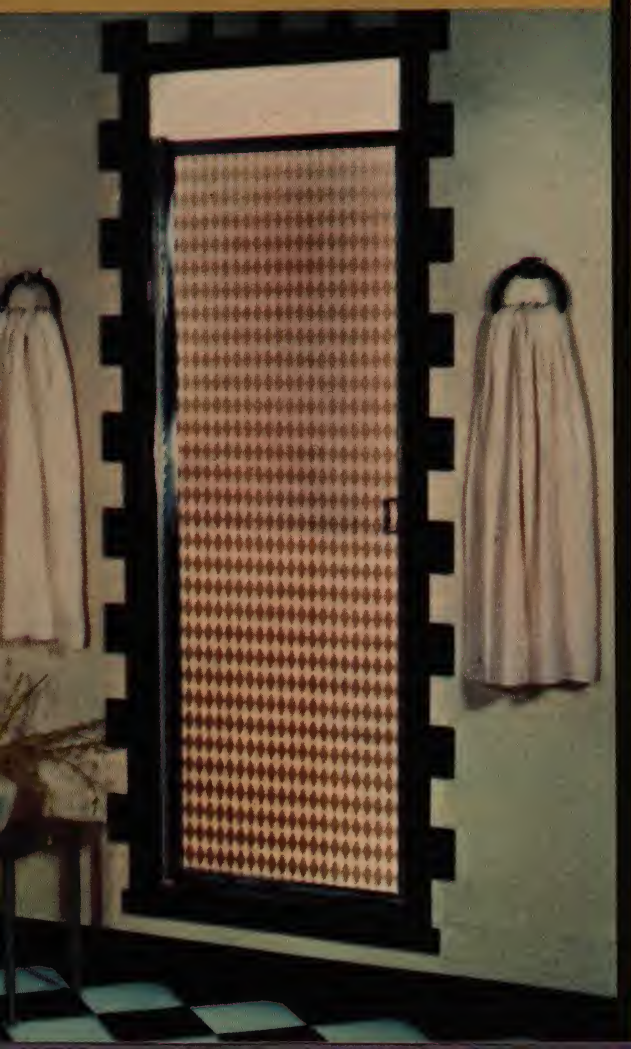




GLAS-WICH®

DEARBORN GLASS COMPANY • BEDFORD PARK, ILLINOIS





GLAS-
-WICH

. . . a glass

Through the years, architects and builders have sought a building material that afforded versatility, beauty, lasting qualities and safety in a single adaptable product.

Now, after years of intensive research and experimentation, the Dearborn Glass Company has created Glas-Wich, a custom-designed line of decorative building material that opens up new vistas in the wonderful world of glass.

Glas-Wich, a new form of expression in decorative laminated safety glass, is a dream come true—for Glas-Wich actually fires and inspires the imagination. Utterly different and exciting, Glas-Wich has as many versatile interior and exterior applications in commercial establishments, homes, offices and institutions as the most imaginative mind can conceive!

© 1960 DEARBORN GLASS CO., BEDFORD PARK, ILL.

created for the designer





2 custom designed patterns



the ABC's of GLAS-WICH

what it is . . .

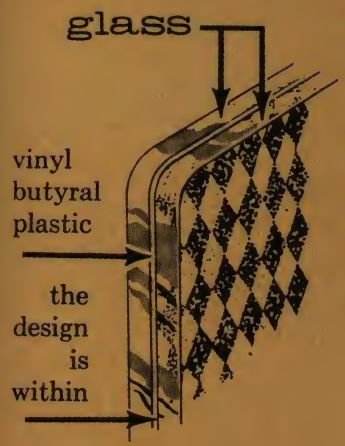
GLAS-WICH is a decorative laminated glass consisting of two or more SHEETS of glass *permanently* bonded together with an interlayer or interlayers of vinyl butyral plastic, under heat and pressure. The decorative components are sandwiched between the glass, protected and preserved for the life of the glass.

where used . . .

GLAS-WICH can be used wherever sheet glass is used and in many areas where it could not be used previously.

flexibility of design . . .

GLAS-WICH can be designed to meet specific *design, structural, physical* or *safety* requirements. Can be designed for *light control, glare reducing, ultraviolet reducing* and *infra-red reducing.*



variations by:

1. Thickness of glass (any number of laminations up to a total thickness of 2″).
2. Types of glass (clear, textured, colored).
3. Designs in pigment, or dyes within the transparent plastic laminate binder, or on the glass, that can be:
   a. printed
   b. screened
   c. painted
   d. in mirrored metal
   e. inserted materials, such as paper, cloth, fibers, botanicals, etc. (materials up to ⅛″ thick) They must, however, be inert to and not harmful to vinyl butyral.
4. Combinations of any of the above.

pages 2/3

Applications...that are unique,

a touch of decorative genius in commercial interiors and exteriors, homes, offices and institutions

This unique building material has unlimited applications in almost every conceivable form of construction. Because it is a safety glass and is non-shattering, Glas-Wich can be used for a score of vertical and horizontal applications such as: entrances to buildings, glass doors, foyers, wall decorations, room dividers, shower stall doors and enclosures, display fixtures and wherever safety is of paramount importance. The ingenious method of lamination makes it possible to achieve a complete variety of effects ranging from transparency, through translucency, to complete opacity.



...bathroom

Bath tub enclosure illustrates standard Champagne design which provides a note of distinction for contemporary bathroom settings.

standard patterns available from stock for many applications

The illustration at right shows Golden Fleece, one of the six new standard GLAS-WICH patterns. See page 6 for illustration of the other new standard patterns with translucent or transparent backgrounds.



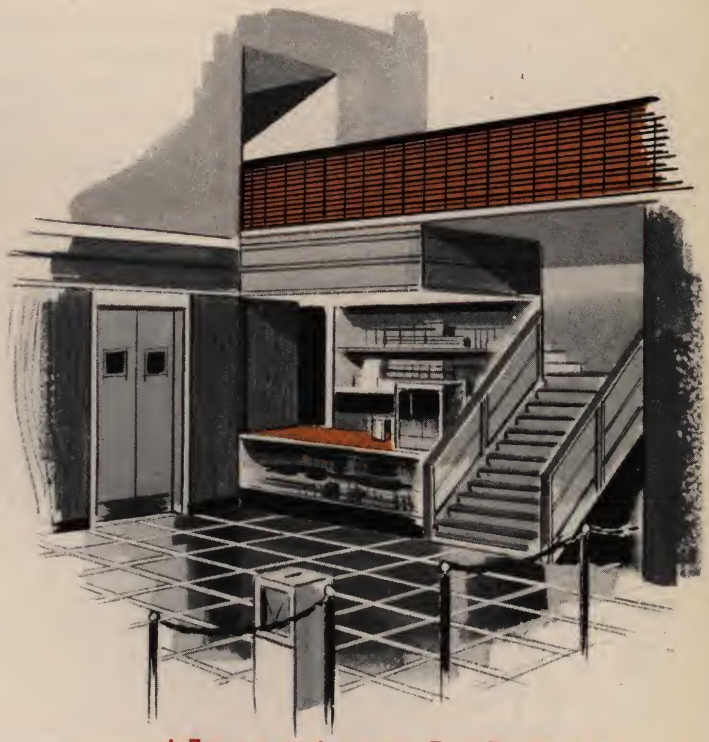
..entrance doors

practical, versatile...safe!



...cocktail lounge

The back bar, bar top and wall panels may be in one motif while a similar or contrasting Glas-Wich pattern might serve for the bar face or table tops.



...theater lobby

Versatile, colorful Glas-Wich patterns provide innumerable applications for theater lobbies, foyers, etc.

The illustrations below show a few of the many other Glas-Wich applications. The scope of Glas-Wich installations is limited only by your imagination.



Office Partitions



Office Doors



Hotel Lobbys



Entranceways



Room Dividers



Kitchen Soffits

6

standard patterns

For economical installations of GLAS-WICH, not requiring custom handling, Dearborn has carefully designed and selected a series of six patterns with translucent or transparent backgrounds. Sheets are stocked up to 39″ x 81″. Available special, up to 48″ x 96″.

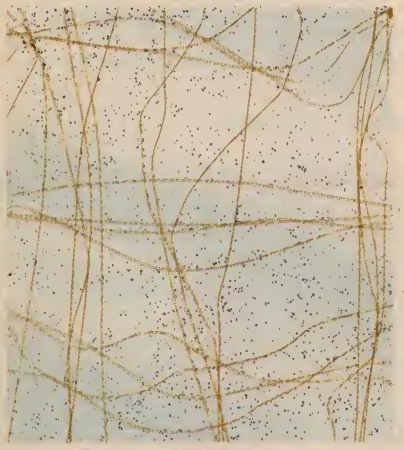
NOTE: patterns illustrated are approximately 25% of actual size.



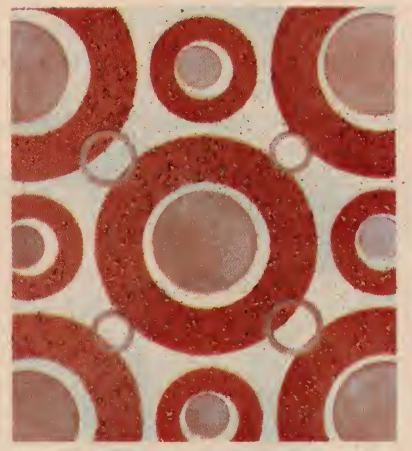
TOUCHE': *Brown*
Translucent



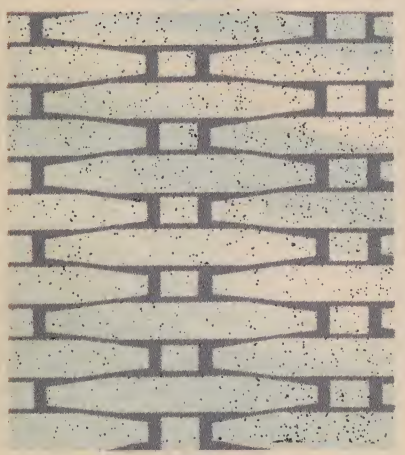
PAISLEY: *Mirror*
Translucent



GOLDEN FLEECE: *Gold*
Transparent



CHAMPAGNE: *Pink*
Transparent



ROMAN WEAVE: *Blue*
Translucent



HARLEQUIN: *Black*
Translucent



BINTULU: *Open mesh design of tropical cane.*



STAR DUST: *Hundreds of minute shimmering silver speckles.*



CELESTIAL: *A shower of gold stars with shimmering gold threads.*



ASTRAL: *Silver studded thread entwining tiny silver stars.*



SOUTH SEA: *Natural bamboo, symbolic of the tropics.*

14

natural patterns

The natural inserts illustrated here have been selected with extreme care to provide the broadest possible application and to satisfy the most discriminating tastes.

Maximum pattern size, 48″ x 96″ with following exceptions: Cloud Mist 38″ x 96″, South Sea 36″ x 96″, and Bintulu 35″ x 96″.



RIVER OF GOLD: *Flowing threads of glittering gold.*



PETITE FERN: *Clusters of exquisitely delicate brown ferns.*



GREEN MAPLE: *Star-like grouping of miniature maples.*



MYSTIC LEAF: *Delicate leaves, beautiful as Belgian lace.*



DEEP SEA: *A stunning array of multi-colored pearl chips.*



MAIDEN FERN: *Natural leaves in all their brilliant beauty.*



BUTTERFLIES: *Butterflies in all their natural beauty.*



CLOUD MIST: *Fine, spun-like white threads in a swirled effect.*



FAN LEAF: *Fine-ribbed leaves of deep green.*

15 colors to choose from

- No. 427 Lemon-Opaque
- No. 429 Gold-Opaque
- No. 430 Cardinal-Opaque
- No. 441 Orange-Opaque
- No. 442 Chinese Red-Opaque
- No. 445 White-Opaque
- No. 446 Ebony-Opaque
- No. 562 Hunter Green-Translucent
- No. 563 Purple-Translucent
- No. 564 Royal Blue-Translucent
- No. 565 Ultramarine-Opaque
- No. 566 Brown-Opaque
- No. 812 Signal Yellow-Translucent
- No. 813 Cherry-Translucent
- No. 814 Shamrock Green-Opaque

ALSO AVAILABLE—All of the geometric designs shown on right in Silver Mirror. NOTE! Any of the above colors can also be used as background colors!

10 metalized colors

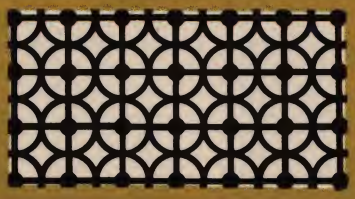
- Satin Aluminum
- Gunmetal
- Tiffany White Gold
- Roman Gold
- Statuary Bronze
- Antique Silver
- Brushed Brass
- Nugget Gold
- Rubbed Copper
- Coinage Bronze

screened geometric patterns

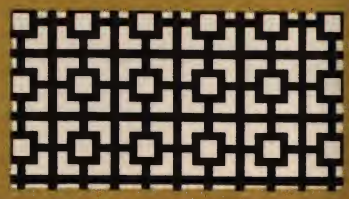
These basic geometric designs were created by an internationally known designer in collaboration with leading architects and decorators. The final choice for these basic designs rested upon two things: (1) simplicity and beauty, and (2) the ability to look sparkling fresh for many years to come. Each design is available in a brilliant array of colors ranging from complete opaque colors through translucent shades to transparent tones.

maximum size available: 48" x 96"

Scale: one foot width indicated



Sphere



Square 'n Square

backgrounds

Backgrounds can be made of the basic geometric designs illustrated above in any of the 15 colors shown as well as any of the 10 metalized colors indicated at the bottom of this page. The "F" fiberglass mats, "N" colored fabrics can also be used for backgrounds. Other effects can be achieved by using the 15 transparent and 7 translucent backgrounds indicated below.

7 translucent backgrounds

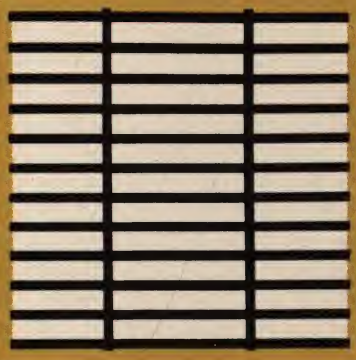
pastel beige • pastel green • pastel white • pastel brown
pastel pink • pastel red • pastel aqua

15 transparent colors

(for backgrounds only)

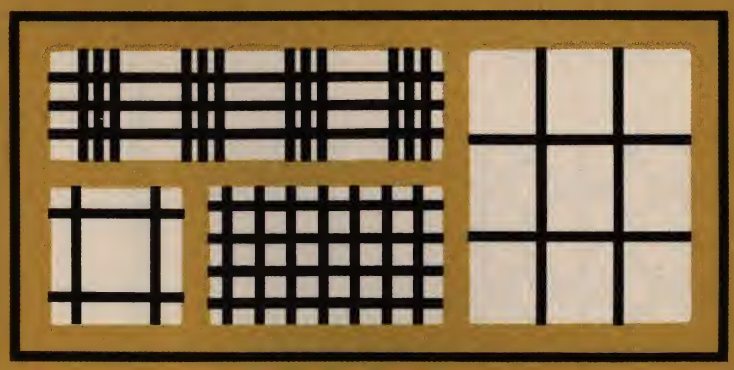
tulip • carnation • orchid • dahlia • marigold • sunflower • crocus • moss • sage • avocado • fern • bluebell • cornflower • slate • smoke

SHOJI: In addition to the Shoji Small at left, a more general use of separator bars for the Shoji effect is offered. Any size glass up to 48″ x 96″ can be divided into any number of individual squares or rectangulars to fit the glass as desired. These separators are ½″, ¾″ or 1″ wide and can be supplied in a mirror, black or any standard opaque color.



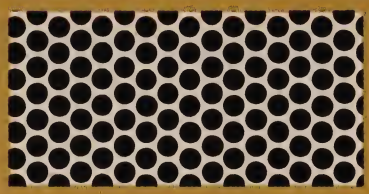
Shoji Small

Shoji Variations





Steeples



Spots



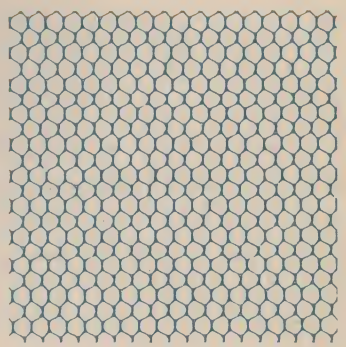
Sierra



Stripes







"F" fiberglass mats

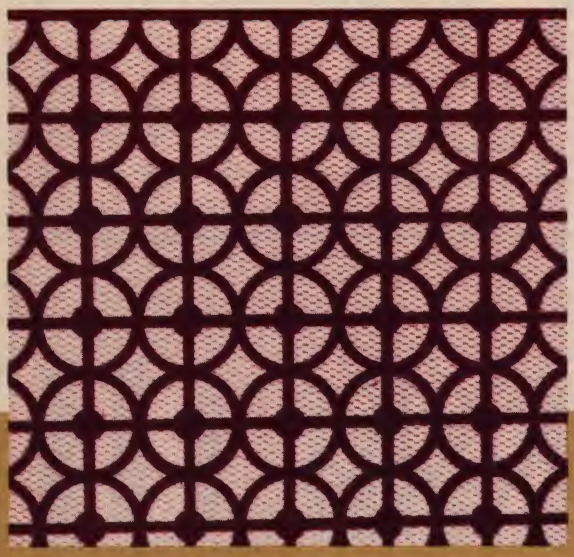
for backgrounds can be furnished in either design illustrated above, and in your choice of colors. These designs are available in natural red, white, dark blue, pink or black. Maximum size available 48″ x 96″.

"N" colored fabrics

are suitable for any design. "N" fabrics are available in white, black, royal blue, American beauty, emerald, red, chartreuse. Maximum size available 48″ x 96″.



1



2

1 Steeples with "F" Fiber Glass Background

2 Sphere with "N" Fabric Background

screened designs

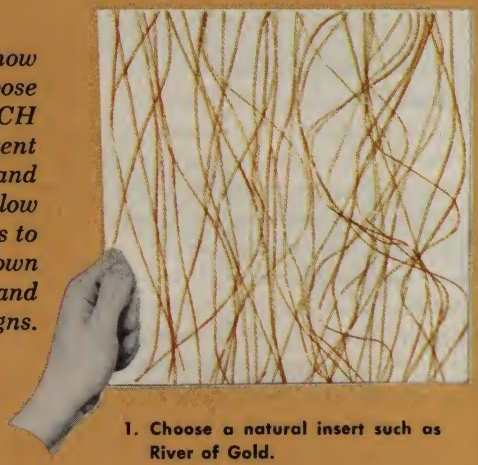
You can formulate your own GLAS-WICH designs by combining screened designs like Sphere, Square 'n Square, etc. with "F" fiber glass backgrounds, "N" fabric backgrounds, transparent or translucent backgrounds.

mirrored designs

Unusual GLAS-WICH designs may be created by combining mirrored designs like Steeples, Sierra, Stripes, etc. with "F" fiber glass backgrounds, or "N" fabric backgrounds, transparent or translucent backgrounds.

Combinations

These illustrations show you how you can compose your own GLAS-WICH designs by selecting different colored translucent and opaque patterns. Follow these simple directions to create your own fascinating and distinctive designs.



1. Choose a natural insert such as River of Gold.

physical properties

dimensional information

The average thickness of GLAS-WICH will be .210 to .250 in sizes up to 24″ x 48″ and .250 to .320 in sizes larger than 24″ x 48″. Tolerance on over-all size will be plus or minus ⅛″. Heavier glass can be used for laminating if desired. Multiple layers of glass up to ¼″ thickness can be supplied.

weight per square foot

Weight depends on construction. It can vary from slightly less than one pound up to thirty pounds per square foot.

flexural strength

Flexural strength is approximately 25% less than a solid piece of glass of the same thickness. Tempered, or ¼″, or ½″ plate glass can be used in the laminate to meet severe shock loading requirements.

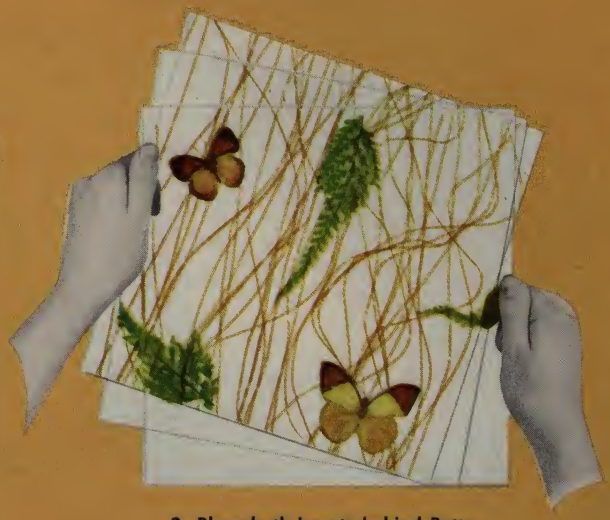
impact strength

The impact strength is primarily dependent on the thickness and type of face plate being shock loaded. The laminate is twice as strong as the single pieces of glass of which it is composed, but about 25% less than a solid piece of glass of a thickness equal to the laminate. Faces ¼″ thick have approximately three times the impact strength of ⅛″ faces. Impact strength in comparison with other glass glazing materials is more than adequate.

. . form your own



2. Combine it with a second insert such as Maiden Fern.



3. Place both inserts behind Butterflies design.



4. This is the piece of decorative art you have created when these particular inserts are combined.

and specification information

thermal shock resistance

The resistance to thermal shock is better than that of a single light of glass of the same nominal thickness as the laminate. The thermal shock resistance of ¼″ plate glass is 100°F. Thermal shock resistance of ¼″ tempered glass is 400°F.

safety

GLAS-WICH meets all specifications of standard laminated safety glass; conforms to all building codes.

optical properties

GLAS-WICH is manufactured to meet your requirements—from transparent (with optimum optical clarity) to opaque.

reflection-reducing

A permanent reflection-reducing surface treatment known as Tru-Site produces a slightly diffused effect. It can be used on one or both surfaces. Maximum size 40″ x 80″.

glare-reducing filter

Glare reducing filter, Slate Grey (provides 25% total transmission) and Smoke Grey (provides 11% total transmission) can be used with or without inserts. However, the appearance of the insert may be altered by the filter.

figured glass

Figured glass, whether Diffusex, Finetex, Ribbed, Factrolite or Luxite can be laminated to clear glass or itself with or without inserts for translucency.

acoustical properties

Supplied to reduce outside noise in the range of 30 decibels and possibly more.

weatherability

As impervious to weathering as other types of glass.

permanence

Successful installations of laminated glass have existed up to twenty years. It is expected that properly installed GLAS-WICH will endure until structurally destroyed.

maintenance

No maintenance required other than that normally used with glass.

special inserts and laminations

Your special fabrics, paper or other materials can probably be laminated. Submit a sample for laboratory test and quotation.





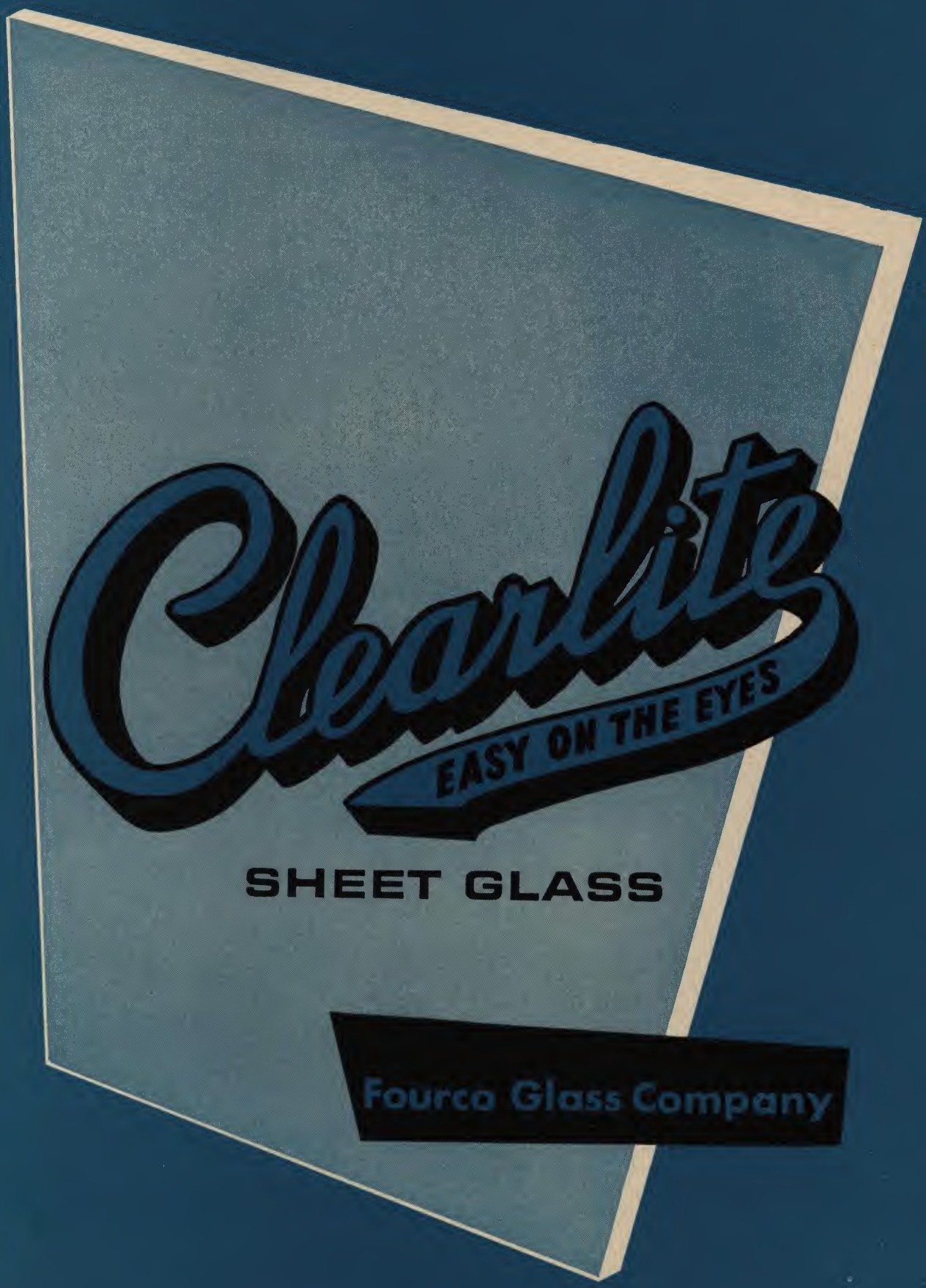
GLAS-

-WICH®



DEARBORN GLASS COMPANY
6600 SOUTH HARLEM AVENUE
BEDFORD PARK, ILLINOIS

PRINTED IN U. S. A.


Clearlite
EASY ON THE EYES
SHEET GLASS
Fourco Glass Company

for quality glazing

CLEARLITE is specified by leading architects wherever top quality sheet glass is required for—windows, sliding glass doors, display cases, furniture tops, and other purposes.

MORE than fifty years of *FLAT* glass manufacturing stands back of *CLEARLITE.*

IT is a product skillfully made by men dedicated to *QUALITY.*

Nationally famous builders and architects throughout the Nation—men who *KNOW* sheet glass best also *KNOW* that *CLEARLITE* serves them best.

It is a proven fact that this famous product enhances any structure in appearance and prestige.

When your specifications call for *SHEET GLASS* you can depend upon *CLEARLITE* quality and you can depend upon a personal service.

Our Divisional Sales Offices and branches are conveniently located.

Contact one of our representatives and get the *CLEARLITE* story—without any obligation on your part.

SPECIFY "CLEARLITE Sheet Glass" to guarantee *QUALITY* and performance.

superior quality of CLEARLITE sheet glass

CLEARLITE is a flat sheet of glass with excellent clarity. It is drawn vertically in continuous sheets, uniform in thickness, annealed as drawn, retaining its natural polished surface under any atmospheric condition. Its superior quality is dependable and because of its unique coefficient of expansion and great tensile strength, is adaptable to special requirements.

For the highest type of glazing and wherever sheet glass is used, **Clearlite** meets the most exacting specifications.

tests and grading with quality label

CLEARLITE is graded to "A" and "B" quality glass according to the highest standards of the glass industry. These grades fully comply with, and often exceed, standards defined by Federal Specifications DD-G-451a. Clearlite is constantly tested and inspected during production to make certain that each light is worthy of the **Clearlite** label.



Every light of **Clearlite** is labeled to indicate the quality.

"A" quality	"B" quality
"A" single	"B" single
"A" double	"B" double
"A" 3/16"	"B" 3/16"
"A" 7/32"	"B" 7/32"
"A" 1/4"	"B" 1/4"

typical uses	suggested maximum sizes	nominal thickness	actual thickness			quality available		product designation
			min.	aver.	max.	"B"	"A"	
mirrors picture frames	60 united inches*		.058	.067	.069	"A"	"B"	14 oz.
	80 united inches*		.070	.077	.080	"A"	"B"	16 oz.
general glazing venetian windows	90 united inches*	3/32"	.085	.091	.100	"A"	"B"	Single Strength
general glazing storm windows	120 united inches*	1/8"	.115	.124	.133	"A"	"B"	Double strength
display cases patio doors picture windows furniture tops partitions jalousie windows window ventilators	120 x 76"	3/16"	.182	.187	.205	"A"	"B"	3/16" Crystal sheet
	120 x 76"	7/32"	.205	.213	.230	"A"	"B"	7/32" Crystal sheet
	100 x 76"	1/4"	.240	.249	.255	"A"	"B"	1/4" Crystal sheet

*** United inches equal length plus width. Larger sizes will be furnished when requested**

shipping and distribution

The high quality standards maintained in the manufacture of Clearlite are applied to shipping and distribution services. Clearlite is packed with paper between each light, enclosed in corrugated paper wrapping and shipped in wooden boxes from three modern plants. Clearlite, distributed through jobbers in all principal cities, is available to glaziers and dealers everywhere.

ordering information

Always specify glass with the horizontal dimension FIRST regardless of size. *(See Fig. 1 and 2)*

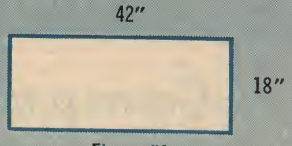


Figure #1

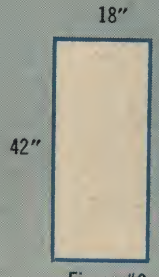


Figure #2

suggested specifications

All exterior windows except as noted shall be glazed with CLEARLITE flat drawn double (or single) strength flat drawn glass of A (or B) quality as defined by Federal Specification DD-G-451a. Each light shall bear the CLEARLITE Label showing strength and quality.

All window glass designated "CS" on drawings and the glass for partitions, display cases, window ventilators, etc. shall be CLEARLITE crystal Sheet 7/32" (or 3/16") thick and A (or B) quality.

unusual conditions

CLEARLITE salesmen are available to assist you with your glass problems. Sales offices are listed on back page. Your local glass dealer will also furnish additional information.

Clearlite
EASY ON THE EYES
SHEET GLASS

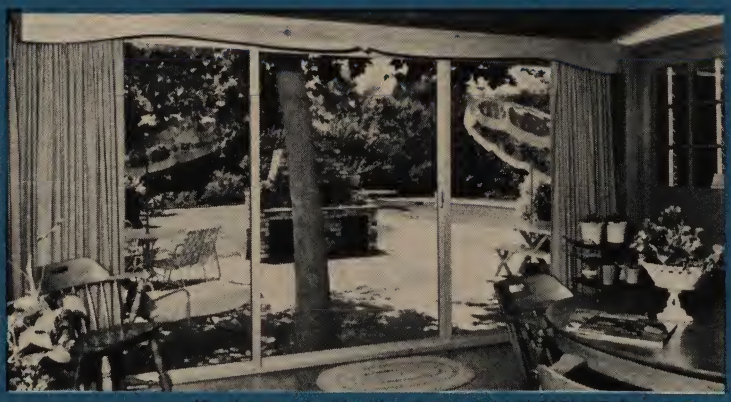
for every purpose where quality is needed and specified



May be glazed with either single or double strength CLEARLITE window glass



May be glazed with either single or double strength CLEARLITE window glass



May be glazed with either 3/16" or 7/32" CLEARLITE Crystal Sheet



May be glazed with either single or double strength CLEARLITE window glass

general offices

Union National Bank Building
Clarksburg, West Virginia

divisional sales offices

NEW YORK (17) N.Y.
Channin Building
122 E. 42nd St.
Ph: Oxford 7-0889

CHICAGO (4) ILL.
Consumers Building
220 S. State St.
Ph: Webster 9-2050

KANSAS CITY (6) MO.
1220 R. A. Long Building
Ph: Victor 2-4410

sales offices

New York City
Chicago, Ill.
Detroit, Mich.
Kansas City, Mo.
Boston, Mass.
San Francisco, Cal.
Memphis, Tenn.
Dallas, Texas
Atlanta, Ga.

factories

Clarksburg, W. Va. (2)
Fort Smith, Ark.

Fourco Glass Company

CLARKSBURG, W. VA.

LO-TRAN 12.5®

HEAT AND GLARE REDUCING

WINDOW GLASS

BETTER LIGHT • BETTER SIGHT



The only Glare Reducing window glass to meet the requirements of the National Council on Schoolhouse Construction PLUS providing high-efficiency heat absorption!

MANUFACTURED EXCLUSIVELY BY

HOUZE GLASS CORPORATION

POINT MARION, PA.

Distributors in Principal Cities



efficient glare and heat reduction for schools and air conditioned buildings

the difference counts

Genuine glare reduction—not just creation of a neutral tone—is essential to permit the architect or lighting engineer to provide "balanced brightness" in the modern classroom or office. Hence, Houze Glass produced, at the request of members of National Council for Schoolhouse Construction and others, Lo-tran 12.5 Window Glass—a neutral gray glass which limits the transmission of daylight to 12.5% while retaining great color fidelity when "looking out."

Houze Glass Corporation is an outstanding authority on light transmission glass due to more than 40 years experience in sun glass lens manufacture. Better quality sun glass lenses have a transmission value of from 6% to 17%. Scientific tests have proved that light transmission of more than 15% is excessive when direct sunlight is involved.

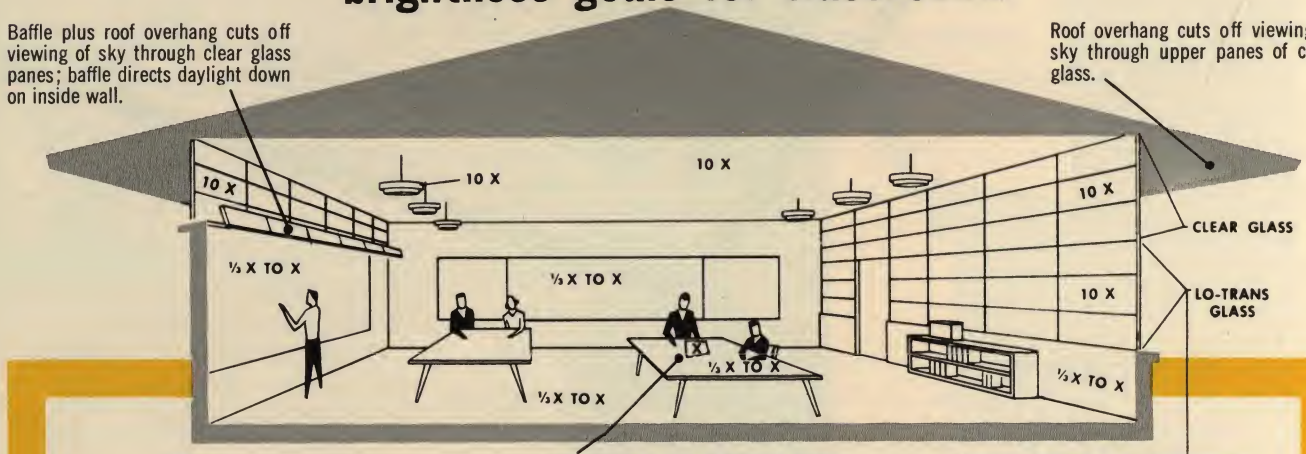
Houze "Lo-tran 12.5" falls well within the control factor required of best sun glass lenses and is the only window glass marketed nationally that can provide this protection. Colors, viewed through Lo-tran are entirely undistorted and, in fact, are somewhat enhanced by heightened contrast.

A comparison of popular qualities of colored glass currently being marketed indicates:

Type	Visual Transmission factor
Clear glass	92%
Type A Grey Tinted	55%
Type B Green Tinted	83%
Houze Lo-tran Grey Tinted	12.5%

Balanced Brightness Houze Lo-tran is the only glare-reducing window glass with sufficiently low light transmission characteristics to permit creation of balanced brightness in a room without use of blinds or drapes. Balanced Brightness is an illumination goal approximating a 1 to 10 contrast between most brightly and most dimly lighted objects in a room. The brightness reduction achieved by use of Lo-tran creates an illumination level that can readily be brought within the 1 to 10 goal by artificial illumination without use of additional shades of any type other than a roof overhang. The roof overhang can also be omitted if a slightly higher brightness ratio is satisfactory.

brightness goals for classrooms*



AREAS OF HIGH BRIGHTNESS (10X)
(Left to right, across top of illustration)

- Glass above high sill wall
- Lighting fixtures
- Ceiling
- Glass above lo-trans. glass
- Low-transmission glass

AREAS OF LOW BRIGHTNESS (⅓X to X)
(Left to right, across lower part of illustration)

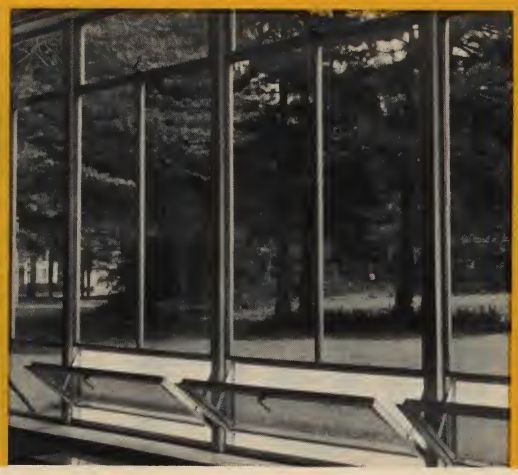
- Wall under high sill
- Front wall
- Floor
- Table top
- Wall under low sill

*COURTESY THE AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS

minimum "see-in"



restful "see-out"



LO-TRAN 12.5 for heat absorption

Houze Lo-tran is a neutral gray window glass that offers unusually efficient heat absorption properties without the weight of plate glass. Tests conducted by the American Society of Heating and Air Conditioning Engineers Research Laboratory give Lo-tran a Solar Energy Transmission value of 42.0% which indicates that 58% of total energy striking the surface is absorbed or reflected.

A comparison of the heat absorbing properties of some popular brands of colored glass now on the market indicates:

Type	Heat Energy Reflected or Absorbed	Heat Energy Radiated to Interior	Heat Energy Transmitted	Total Heat Gain on Interior
Clear Glass	13%	1.5%	87%	88.5%
Type A	37%	13.5%	63%	76.5%
Type B	56%	23.0%	44%	67.0%
Houze Lo-tran	58%	24.0%	42%	66.0%

Houze Lo-tran is a lime glass and reacts chemically and physically in the same manner as clear glass. Lo-tran glazes the same as ordinary clear glass, using only standard clearances within frames. Double-strength Lo-tran offers heat absorption characteristics equal to ¼" heat absorbing plate glass of other manufacture. The neutral gray color is non-aging and permanent. Solar tests of more than 2 continuous years produced an immeasurable change.

Inherent Advantages of LO-TRAN

Sun Glass Efficiency—Color Fidelity With a 12.5% light transmission factor, Lo-tran offers the only method of obtaining true glare reduction and balanced brightness without use of auxiliary shades except, possibly, an overhang. Government specifications for sun glass lenses require visual transmission values between 12% and 18%. Lo-tran's neutral gray color assures true color fidelity when looking out, the same as neutral sun glass lenses.

See-In Protection The depth of color used in Lo-tran is the only shade which completely protects rooms from "seeing-in" under daylight conditions. This is particularly useful in one and two story classrooms or offices where outside annoyances can be a factor.

Reduced Maintenance and Investment Lo-tran's efficiency and vision control from the exterior is so great that many costly building accessories such as blinds, draperies, sunshades and extensive roof overhangs can generally be omitted depending upon conditions.

From the standpoint of glare reduction, no blinds or draperies are needed, although a roof overhang is recommended when balanced brightness is a goal. The roof overhang may also be omitted when a higher brightness factor is satisfactory. In industrial applications where windows are frequently painted or screened with plastic filters, both costs and maintenance are entirely eliminated.

Upkeep on blinds, draperies and other accessories can be entirely eliminated.

Normal Glazing Procedure Because Lo-tran is furnished in standard double strength thickness, no extraordinary provisions for glazing are necessary. Lo-tran glazes either with face putty or by enclosure in glazing chases the same as clear window glass. Standard glazing clearances are satisfactory.

Heat Radiation Characteristics All window glass has a heat radiation factor that must be considered in figuring air conditioning. Of the total amount of solar energy striking Lo-tran glass about 10% is reflected, 48% absorbed and 42% transmitted. Of the 48% absorbed approximately half or 24% is radiated from both sides of the glass. Therefore, with Houze Lo-tran total heat gain on the interior is 66%. By comparison, ordinary clear glass reflects approximately 10%, absorbs approximately 3% and transmits 87%, resulting in approximately 88.5% total heat gain on the inside.



SIZES

Lo-tran Window Glass is manufactured in double strength thickness (.125″) only.

Stock sheet sizes of up to 60″ x 48″ are standard and cut sizes within these limitations can be furnished on request.

ADDITIONAL TECHNICAL INFORMATION

Spectral comparisons of Lo-tran and competitive glass verifications of light and energy transmission figures, brightness survey charts and other detailed information will be sent on request. See also American Association of School Administrators' booklet "Common Sense in School Lighting."

typical installations of LO-TRAN

Alhambra, California
Azusa, California
Covina, California
Downey, California
Lake Arrowhead, California
Whittier, California
Middlebury, Connecticut
Indianapolis, Indiana
Clinton, Iowa
Welebraham, Massachusetts
Battle Creek, Michigan
Dearborn, Michigan
Detroit, Michigan
Grosse Isle, Michigan
St. Paul, Minnesota
Jackson, Mississippi
Crete, Nebraska
Union, New Jersey
Bellmore, L.I., New York
Buffalo, New York
Syracuse, New York
Greensboro, North Carolina
Cleveland, Ohio
Harrisburg, Pennsylvania
Philadelphia, Pennsylvania
Houston, Texas
Huntsville, Utah
South Ogden, Utah
Madison, Wisconsin
Milwaukee, Wisconsin



First floor classrooms are protected against outdoor annoyances by the limited "see-in" properties of Lo-Tran.



Note use of roof overhang to shield direct light, making "balanced brightness" easily obtained with minimum artificial illumination.



Lo-Tran gives undistorted "see-out" ability with true color values. Neutral gray color of Lo-Tran is permanent.

HOUZE Lo-tran ®

HOUZE GLASS CORPORATION

POINT MARION, PA.

Colored and Technical Glass

GLASS

FOR CONSTRUCTION



Parallel-O-Plate®

Heavy Plate

Heat Absorbing

Parallel-O-Grey®

Rough Plate

Mirropane®

Bullet Resisting

Safety

Tuf-flex®

Vitrolux®

Sheet

Thermopane®

AIA—File No. 26-A-1960

LIBBEY · OWENS · FORD GLASS COMPANY
TOLEDO 3, OHIO

1960

LIBBEY · OWENS · FORD

a Great Name in Glass

Glass is a 20th century pace-setting product in today's unprecedented business surge. The spirit which has made Libbey•Owens•Ford a leader in flat glass manufacturing is reflected in its development of new quality products and plant expansion. Beautiful design with walls of glass provides a bit of the aesthetic and the practical and puts enjoyment of living and working beyond the dreams of architects in past generations.

"Firsts" in L·O·F glass products . . .

Established research for automotive Safety Glass	1926
Pioneered straight-line mass production of ⅛" automotive plate	1929
"Picture Window" promotion begun, phrase later coined	1932
"Main Street" promotion	1936
Initiated storm sash promotion	1938
"More glass in small homes" promotion launched	1940
"Solar House" promotion launched	1940
National advertising of *Thermopane* for refrigeration	1941
"Visual Store Fronts" promotion	1941
Thermopane advertising to construction field begun	1944
Started *Thermopane* program for farm buildings	1946
Solar House architectural competition	1947
Established farm *Thermopane* research program	1950
Announced E-Z-Eye shaded windshield	1950
Thermopane Panel Window program began	1951
Introduced *Parallel-O-Plate*, first U.S. twin-ground polished plate glass	1954
Vitrolux for curtain walls announced	1956
Twin-ground Parallel-O-Grey polished plate introduced	1957

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L·O·F FLAT GLASS

POLISHED PLATE GLASS

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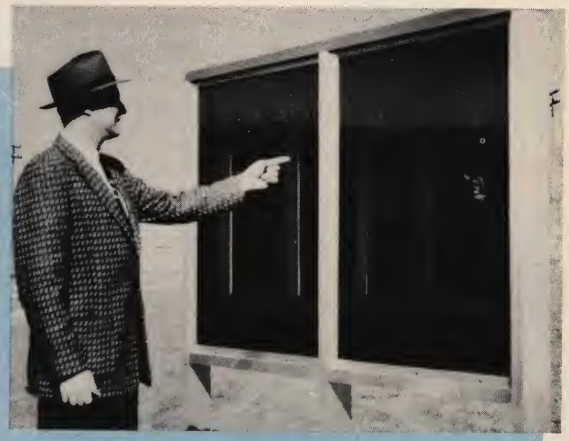
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POLISHED PLATE GLASS

Produced under our rigid manufacturing specifications for grinding and polishing, the consistently high quality of L-O-F polished plate glass does much to contribute to better building design and to meet the architect's discriminating taste. Polished plate glass provides reflections that are more true, produces undistorted vision and adds a depth dimension to buildings. These characteristics are most important to consider as size of glass areas increase. See chart on page 5 for thicknesses, characteristics, etc.

1/4" PARALLEL-O-PLATE®

1/4" ***Parallel-O-Plate*** provides perfection in polished plate glass. Produced by L-O-F in the United States since 1954, this superb glass is achieved by a twin-grinding process in which both sides of the glass are ground simultaneously by extremely accurate grinders weighing over 5 tons each. Such precision results in a more uniform thickness, more parallel surfaces, more perfect reflection and more freedom from distortion—important as window areas expand and extremely desirable for all mirror installations. These characteristics combine to make ***Parallel-O-Plate*** far superior to all other types of polished plate glass.



The glass in these two window frames is backed with black composition board to simulate the mirror effect of windows in a building. In the window at the left, glazed with *Parallel-O-Plate*, the reflections are mirror-perfect. In the other, glazed with sheet glass, note the distorted reflections of all straight lines.

HEAVY POLISHED PLATE

L-O-F heavy polished plate glass, in a range of thicknesses from 3/8" through 3/4", is produced by the twin grinding process. Its uniform thickness and more parallel surfaces provide truer reflections. This is a distinct advantage for glazing uses where design requirements call for heavy plate glass. Specific thicknesses 3/8" and 1/2" are manufactured in large sizes to meet the growing architectural interest for uninterrupted expanses of glass. See chart on page 5.

qualities

Silvering Quality	—For finest mirrors and selective uses.
Mirror Glazing Quality	—For selected commercial mirrors.
Glazing Quality	—General glazing purposes.
Commercial Quality	—Heavy polished plate glass applications.

applications of various thicknesses

1/8"—Small panes, etc.
1/4"—Windows of public and office buildings, residences and apartment buildings, mirrors, storefronts, showcases, shelving, table and desk tops.
3/8" through 1/2"—For exceptionally large window areas to provide greater strength.
3/8" through 1"—Shelves, furniture, desk and table tops, aquarium tanks, noise reduction, decorative panels, screens, etc.
NOTE: See *Tuf-flex* section on page 8 for all thicknesses except 1/8".

HEAT ABSORBING polished plate

A product of special chemical composition, pale bluish-green in color, this glass absorbs a high percentage of the total radiant energy of the sun. Part of the absorbed heat is subsequently transferred to the interior, but a considerable portion is given off to the exterior, effecting a net reduction of the solar heat entering through the glass.

heat and light transmission

¼" thick heat absorbing glass transmits 46.3% of the total solar radiation (heat) as compared with a transmission of 79.9% afforded by regular plate glass ¼" thick. This resulting reduction of solar heat transmission produces a cooler atmosphere inside, resulting in lower initial cost for air conditioning equipment and its cost of operation. It also reduces sun and sky glare and provides light more restful to the eyes.

uses

L-O-F Heat Absorbing polished plate glass is particularly suited for glazing the windows of office and apartment buildings, hospitals, schools, factories, and other types of buildings where a reduction of solar heat and glare is desired. Along with these characteristics the reasonably high light transmission still provides good visibility and merchants whose wares are perishable will find L-O-F Heat Absorbing Polished Plate Glass beneficial for show windows. Because of its heat absorbing characteristics, this glass helps protect merchandise such as fruits, vegetables, candy and flowers by keeping them fresh longer.

For installations requiring added resistance against breakage, Heat Absorbing Glass is also available in *Tuf-flex* tempered plate—see page 9. For use of Heat Absorbing plate as outside light of *Thermopane* insulating glass, see table page 24.

¼" PARALLEL-O-GREY ®

Parallel-O-Grey is a twin ground neutral grey polished plate glass. It provides a reduction of glare and brightness, because of its lower light transmission, without sacrifice of color integrity. *Parallel-O-Grey* is also a heat absorbing glass effecting a net reduction of the solar heat entering through the glass. Its important feature of being twin ground assures a plate glass with relative freedom from visible distortion and being a tank glass, greater uniformity of color and quality is provided.

light and heat transmission

¼" *Parallel-O-Grey* polished plate glass transmits approximately 44% of average daylight (Illuminant C) as compared with a transmission of approximately 89% through regular ¼" polished plate glass and approximately 75% through ¼" Heat Absorbing polished plate glass. This lower light transmission results in reduction of glare and brightness. Its transmission of approximately 47% of the total solar radiation (heat) is comparable to the performance of ¼" Heat Absorbing polished plate glass.



These classroom view windows are glazed with L-O-F *Parallel-O-Grey*. San Angelo Senior High School, San Angelo, Texas. Architects: Caudill, Rowlett, Scott & Assoc. Associate architect: Max D. Lovett.

uses

L-O-F ¼" *Parallel-O-Grey* polished plate glass has been designed for glazing windows of office and apartment buildings, schools, hospitals, libraries and buildings of other types where significant reduction of glare and brightness is desirable. Along with these benefits, the pleasing neutral grey color of *Parallel-O-Grey* provides comfort in the field of vision. An additional advantage of *Parallel-O-Grey* comes from its heat absorbing quality providing benefits in lower costs of air-conditioning equipment and cost of operation. It is not recommended for storefront glazing where maximum visibility is desired. For added resistance against breakage, *Parallel-O-Grey* is also available in *Tuf-flex* tempered plate. See page 9.

SEE SUGGESTED SPECIFICATIONS ON PAGE 26

21/64″
ROUGH PLATE BLANKS
regular and heat absorbing

Rough Plate Blanks result from the first step in the production of polished plate glass. These blanks have slight configurations on both surfaces producing a pleasing, translucent textured appearance with relatively high light transmission and good obscurity. The heavy (21/64″) thickness permits the use of large individual sheets if desired. Maximum size is 100″ x 144″. These features have resulted in a primary use as interior borrowed light partitions. Other uses include transom, sidelight and spandrel applications. Rough Plate Blanks are also available in *Tuf-flex*. See page 9.



Typical rough plate blank partition installation.

selection

type	thickness	thickness tolerance	maximum width & length		approx. weight lbs. per sq. ft.	average solar radiation transmittance values at normal incidence		
			standard	special		ultra-violet	illuminant C (avg. daylight)	total solar radiation*
regular	1/8″	±1/32″	72″ x 74″	74″ x 120″	1.64	75.9	90.6	86.1
parallel-o-plate†	1/4″	±1/32″	124″ x 170″	124″ x 252″	3.27	67.8	89.1	79.9
twin ground†	3/8″	±1/32″	96″ x 120″	120″ x 264″	4.90	60.5	87.3	75.2
	1/2″	±1/32″	96″ x 120″	117″ x 300″	6.54	54.9	86.0	71.0
	5/8″	±3/64″	72″ x 120″	90″ x 132″	8.17	51.0	84.7	67.1
	3/4″	±3/64″	72″ x 120″	90″ x 132″	9.81	47.6	83.3	63.3
regular	1″	±1/16″	42″ x 96″	48″ x 108″	13.08	42.8	78.2	55.5
parallel-o-grey†	1/4″	±1/32″	96″ x 138″	100″ x 192″	3.27	39.0	44.2††	46.6**
heat absorbing	1/4″	±1/32″	84″ x 120″	96″ x 138″	3.27	44.9	74.7	46.3**
rough plate blank regular	21/64″	±1/32″	80″ x 144″	100″ x 144″	4.29	63.4	88.3	76.7
heat absorbing	21/64″	±1/32″	80″ x 144″	100″ x 144″	4.29	37.4	71.5	41.5

*Solar radiation values are normal incidence transmittances for source that has energy distribution of the sun at 30° altitude (air mass equals two) (approximately 3% ultraviolet, 45% visible rays, 52% infrared).

**This average is subject to commercial variation, but all Libbey-Owens-Ford Heat Absorbing and Parallel-O-Grey Polished Plate Glass meets Federal Specification DD-G-451a which specifies total radiation not more than 0.50.

†1/4″ Parallel-O-Plate, Parallel-O-Grey and items of heavy plate as indicated are manufactured by the twin ground process.

††Parallel-O-Grey meets the heat absorbing requirements of Federal Specification DD-G-451a of December 9 1949, Amendment 1, June 15, 1951, Page 7, Paragraph 3.7.1. It has not been designed to meet the requirement for luminous transmittance.

mirrors of
PARALLEL-O-PLATE

Parallel-O-Plate mirrors provide an exactness of image and sparkling clarity that excels. Both surfaces of *Parallel-O-Plate* are ground simultaneously, resulting in surfaces parallel to a degree never achieved by any other method of making plate glass. The more parallel the surfaces, the more perfect the reflection.

Libbey-Owens-Ford Glass Company does not manufacture and sell chemically deposited mirrors for architectural purposes, but supplies *Parallel-O-Plate* glass to many of the leading mirror manufacturers.



Compare reflections of the upside-down signs in the mirror of conventional plate glass (left) and the mirror of *Parallel-O-Plate* (right.)

MIRROPANE® transparent mirrors

Mirropane appears as a mirror when viewed from one side but is transparent from the opposite. Ideally, one side should be brightly lighted for the illusion of an opaque mirror, with dimmed lighting on the opposite side from which observers may view into the lighted area.

Where the necessary light intensity differential between the two areas involved is not available, *Mirropane* may be purchased manufactured with Parallel-O-Grey polished plate. Parallel-O-Grey reduces the light intensity differential to about 3 to 1.

If some degree of protection from impact is desired, *Mirropane* is available in a form of laminated Safety Glass where the coating may be between the lamination or on the outside. Where resistance to thermal shock and impact is desired, *Mirropane* can be supplied on tempered plate in thicknesses as specified on page 9.

Mirropane's durable coating of evaporated chromium alloy offers definite advantages over the chemically deposited mirrors on the market.

suggested uses

Residence entrance doors, hospital observation windows (particularly psychiatric), show windows, super markets, variety chain stores, department stores, commercial refrigerators, nursery doors in residences, toll houses, kindergartens, night clubs and taverns, security windows in government offices, banks, post offices, FBI offices, police departments, private offices, factories and institutions, and colleges and universities (psychology departments).

installation

Mirropane should be installed with its reflective (coated) side toward the area into which observation is desired, that is, toward the brightest side.

sizes

L-O-F *Mirropane* is furnished in stock sizes of 1/8" and 1/4" polished plate glass or 1/4" Parallel-O-Grey polished plate glass and in any size up to a maximum of 30" x 40" in 1/8" thickness and 60" x 80" in 1/4" thickness. Larger sizes available on special order.

BULLET RESISTING

Bullet Resisting plate glass is composed of a minimum of four layers of glass and a minimum of three layers of Hi-Test plastic. Available in all thicknesses and sizes shown in the selection chart opposite, 1-3/16", 1-9/16", 1-3/4" and 2" thicknesses are available to Underwriters' Laboratories specifications for indoor and outdoor installations in bandit-resisting enclosures.

protective value

Bullet Resisting glass is clear and, in many installations, cannot be detected without close inspection. To persons unacquainted and unfamiliar with this product, it appears as an ordinary pane of glass. Any installation would pay for itself in protection of valuables, customers and workers if a single robbery were thwarted because of its use.

uses

Extensively used for glazing bank teller cages, cashier booths, jewelry store display cases, and observation windows in pressure test chambers.

SAFETY GLASS

Safety Glass is made of two lights of polished plate or sheet glass bonded by tough transparent plastic, and is available in types, thicknesses and sizes shown in the selection chart opposite. The interlayer is a carefully plasticized polyvinyl butyral resin which has unusual strength, elasticity and adhesion. When fractured, the particles of glass tend to adhere to the plastic, affording maximum protection against flying glass fragments.

uses

An established standard in the automotive and transportation industries for years, improved techniques in bending have now broadened its usefulness.

In building construction, for exterior glazing precaution must be observed in setting specifications because of possible deteriorating effects from the chemical action of some glazing compounds. We suggest, therefore, that our engineers be consulted before selecting for exterior use.

SEE SUGGESTED SPECIFICATIONS ON PAGE 26



From the lighted side this *Mirropane* window becomes a gleaming wall mirror. Architects: Eschweiler & Eschweiler, Milwaukee, Wisconsin.

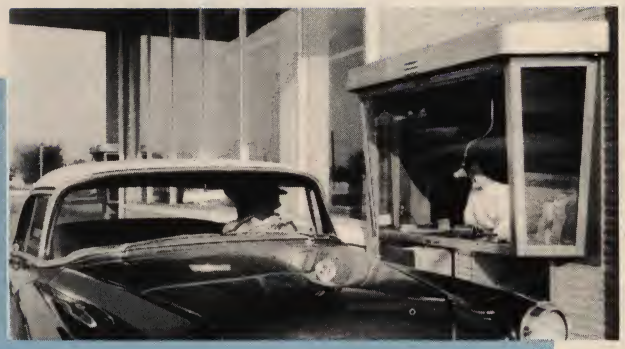


These Wisconsin State College students can observe children at work without the youngsters knowing it. Also used in security windows and in psychiatric study.

thickness	thickness tolerance	maximum standard size	dimensional tolerance	net wt. lbs. per sq. ft. unpacked
3/4"	±1/16"	72" x 138"	+0-1/8"	9.81
7/8"	+1/8"-0	72" x 138"	+0-1/8"	11.45
1"	+1/8"-0	72" x 138"	+0-1/8"	13.08
1 3/16"	+1/8"-1/16"	72" x 138"	+0-1/8"	15.51
1 1/16"	+1/16"-1/8"	see below	+0-1/8"	20.44
1 3/4"	+1/8"-1/16"	see below	+0-1/8"	22.89
2"	+3/16"-1/16"	see below	+0-1/8"	26.16
2 1/2"	+3/16"-1/16"	see below	+0-1/4"	32.70
3"	+3/16"-1/16"	see below	+0-1/4"	39.24

Thickness 1 1/16" through 3" max. width 72", max. length 138". Limited to 1100 pounds weight per light. Following table to apply.

thickness	max. width when max. length is required	max. length when max. width is required
1 1/16"	56" x 138"	72" x 106"
1 3/4"	50" x 138"	72" x 96"
2"	44" x 138"	72" x 84"
2 1/2"	34" x 138"	72" x 66"
3"	28" x 138"	72" x 56"



Bullet Resisting glass offers needed protection to tellers in drive-in depositories like this.

types	thickness	thickness tolerance	max. area	net. wt. lbs. per sq. ft.
thin safety sheet	5/32"	−1/32"	7 sq. ft.	1.92
S. S. safety sheet	7/32"	±1/32"	15 sq. ft.	2.49
combination safety sheet (S.S. & D.S.)	15/64"	±1/32"	15 sq. ft.	2.91
D. S. safety sheet	1/4"	±1/32"	15 sq. ft.	3.32
E-Z-Eye safety sheet	15/64"	±1/32"	10 sq. ft.	2.91
safety plate (clear and E-Z-Eye)	1/4"	±1/32"	72" x 138"	3.16
heavy safety plate	3/8"	±1/32"	72" x 138"	4.88
	1/2"	±1/16"	72" x 138"	6.54
	5/8"	±1/16"	72" x 138"	8.13
	3/4"	±1/16"	72" x 138"	9.81
	7/8"	±1/16"	72" x 138"	11.45
	1"	±1/16"	72" x 138"	13.08



Safety Glass in elevator, recessed in exterior wall of Oakland, Calif., apartment building. Architect: Values, Inc., Berkeley.

TUF-FLEX®
tempered plate

Tuf-flex is tempered polished plate glass made by a process of reheating and sudden cooling. As a result, the outer surfaces are in a state of high compression while the central portion remains in tension, producing a condition highly resistant to breakage. Tempered glass is not as flat as ordinary plate glass particularly along the edges, but the deviation is so slight it is not objectionable. Libbey-Owens-Ford Glass Company assumes no responsibility regarding breakage or installation.

properties

Tuf-flex is 3 to 5 times stronger than plate glass of the same area and thickness in sustaining loads and resisting fracture due to strain—approximately 3 to 5 times more resistant to impact shock from blunt objects—4 times more resistant to thermal shock. With all these added advantages, it still retains the same appearance, clarity, hardness and coefficient of expansion as regular polished plate glass. Although *Tuf-flex* withstands temperature differentials up to 400° F., it cannot be considered a fire retardant.

uses

- Visual entrance doors in all commercial, public, institutional and industrial buildings.
- Windows in gymnasiums and sports arenas.
- Jails, hospitals and mental institutions.
- Enclosures in museums, zoological gardens and aquariums.
- Backboards for basketball and handball.
- Balustrades.
- Counter tops and show cases.
- Push and kick plates on doors.
- Ship's glazing.
- Lenses for searchlights, floodlights and spotlights.
- Sterilizing ovens.
- Windows in oven doors.
- Peep hole glasses in furnaces and lehrs.
- Steam and oil pressure gauge covers.

for general glazing

The advantages of *Tuf-flex* tempered plate glass have been proven wherever frequent breakage has made reglazing a constant expense. Although not unbreakable, it is much more resistant to bending stresses than polished plate glass, and unlike ordinary glass, it disintegrates into small crystals when its limit of resistance is reached.

special shapes

Tuf-flex can be ordered in circles, squares, rectangles and special shapes cut to pattern, in a variety of edge finishes. However, since it cannot be cut after tempering, exact sizes required must be specified, and intricate designs should be submitted for approval.

for glass doors

Tuf-flex tempered polished plate glass doors are the designer's answer to his need for building entrances offering an unobstructed, inviting view of the interior. They have the durability and strength to withstand the heaviest traffic demands and provide more than normal protection against burglary or vandalism. *Tuf-flex* doors are adaptable to various types of alarm systems and panic hardware. Definite schedules of insurance rates may be obtained from any agency.

fittings

Doors are furnished with either continuous channel or corner fittings at top and bottom, as shown on opposite page, and are available in aluminum, bronze, or stainless steel in all standard finishes. Center lock and strike fittings may be located on the swing edge, or if desired lock and/or bolts may be placed in top and bottom fittings.

If approved by L-O-F, custom fittings furnished by others may be applied to the glass at our factory. Concealed door holders can only be used with continuous top channels. Applied on the tempered glass at the factory, fittings cannot be changed or altered at the point of installation without possible damage to the glass.

SEE SUGGESTED SPECIFICATIONS ON PAGE 26

selection

kind	thickness	max. size*	thickness tolerance	dimensional tolerance	wt. per sq. ft.
regular polished plate glass	¼", ⅜", ½"	72" x 120"	±1/32"	±1/16"	See plate glass chart on page 5
	⅝", ¾"	72" x 120"	±3/64"	±1/16"	
	1"	42" x 96"	±1/16"	±1/16"	
parallel-o-grey	¼"	72" x 120"	±1/32"	±1/16"	
heat absorbing	¼"	72" x 120"	±1/32"	±1/16"	
rough plate blanks					
regular	21/64"	72" x 120"	±1/32"	±1/16"	
heat absorbing	21/64"	72" x 120"	±1/32"	±1/16"	

*minimum width—2"

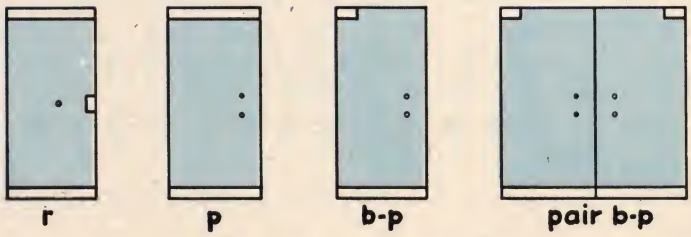
strength comparison

	¼" plate	¼" Tuf-flex
modulus of rupture (Avg.) lbs./sq. in.	6,000	30,000
resistance to thermal shock	100°F.	400°F.
impact comparison 2 lb. steel ball	Avg. 8"	Avg. 44"
height dropped 11 lb. shot bag	Avg. 32"	Avg. 96"



Tuf-flex was specified for this multi-purpose school room next to playground area. Architect: John Lyon Reid, San Francisco.

types



Shown above are the more commonly used types. A total of 16 types are offered in standard or special sizes. Maximum width 48". Maximum height 108". Thickness ½" or ¾"

standard sizes

29 13/16" x 83 3/16"
29 13/16" x 83 11/16"
30" x 84"
35 13/16" x 83 3/16"
35 13/16" x 83 11/16"
36" x 84"

installation

Tuf-flex doors are installed on standard center or off-set pivot hinges and are equipped with an adaptor plate at the bottom and oil-lite bearing at the top to receive the pivot hinges. Door frames or jambs of aluminum, bronze, stainless steel or other metal are preferable.



Tuf-flex Polished Plate Glass doors substantially reduce the susceptibility to breakage and furnish polished clarity to this store entrance.

For detailed information on *Tuf-flex* Doors see Sweet's file for architects 16d/Lib.

VITROLUX®
for curtain walls

Vitrolux is heat-strengthened, ¼" polished plate glass with the added feature of vitreous color, fire-fused on the back surface to become an integral part of the glass. It provides a hard, nonporous polished surface which resists most atmospheric acids and temperature changes. *Vitrolux* will not fade, swell, shrink, warp, craze or deteriorate and is easy to keep clean.

density

Opaque only. Scattered "pin holes", particularly in darker colors, and some non-uniformity of ceramic coating thickness will be allowed. When viewed against a strong light, a mottled or streaked effect is evident. For this reason, *Vitrolux* should not be used as a glazing material such as plate glass, but used in front of a back-up of masonry, fiber glass insulation, etc.

general applications

Vitrolux is used as spandrels or for entire facades in conjunction with metal framing of curtain-wall design in the construction of storefronts and other buildings (commercial or institutional), industrial plants, showrooms, laboratories, etc.

dimensions

maximum standard size: 72" x 108"
thickness: ¼" polished plate glass (tolerance $+\frac{1}{64}", -\frac{1}{32}"$)
dimensional tolerance: $+0", -\frac{3}{16}"$

colors

Color is sunfast and offers the same natural resistance to weathering, crazing and checking as ordinary glass. Opaque only, the sixteen standard colors plus black and white are:

Brick Red	Buff	Ice Green	Silver Gray
Jade Green	Golden Olive	Turquoise	Gunmetal
Fawn	Sage Green	Spruce	Cinnamon
Colonial Blue	Charcoal	Hunter Green	Chocolate

installation

Vitrolux should be placed on two setting blocks at the quarter points of the bottom edge of panel. Caulking compound, approved by the architect, is to be placed in the rabbets having removable stops on all four sides of opening. Rabbet details should be such that the glass will not become load bearing. Glass-face to stop-face clearance should be ⅛" to ¼" inside and out. Vitrolous should not contact other materials except in the glazing rabbet.



Colonial blue *Vitrolux* was selected for this new office building. Architect: H. L. Vokes Co., Cleveland.

See Sweet's file for architects 3e/Li or ask for catalog VX-1 and detail drawings of typical mullions and vertical sections, VX-2.

SPECIAL TREATMENTS

decorative glass

Three types of sandblast decorative finish are available for polished plate:

Surface sandblast—in grades from very slight to complete removal of polished surface.

Shaded sandblast—gradations in shading from natural surface to complete obscuration of polish.

Deep sandblast—decoration cut below surface of glass without modeling or gradation.

bent glass

Bent glass shapes are produced by causing flat glass to form in a mould by the action of heat and gravity only. It is not a machined product, and is subject to more distortion and wider tolerances than flat polished plate or window glass.

explanation of bent glass diagrams

Dimensions on diagrams are to illustrate maximum limits of proportions. Radii of curves may not be less than 6". Radii should be specified to outside surface of glass. Maximum rise of bends J and K must not exceed 36". Depth of G bends not to exceed 1 in 16; example, pane 64", depth 4". Large flat portions of bent glass cannot be kept entirely flat and should be ordered as separate lights. Requirements for bends in glass of greater thicknesses or for larger dimensions than those listed at right should be submitted for consideration.

SEE THERMOPANE SPECIFICATIONS ON PAGE 26

SHEET GLASS

Flat drawn sheet glass, representing the result of more than 30 years of quality glass manufacturing, is exceptionally transparent and has a natural fire-finished surface. L-O-F uses its own exclusive flat drawn process in manufacturing sheet glass. The result is a better annealed window glass that is less subject to breakage in cutting. Shipped in soundly-constructed boxes, sheet glass is given neat, clean and practically moisture-proof protection.

grading qualities

"AA"—Specially selected glass for highest grade work.
"A"—Select glass of superior glazing quality.
"B"—Suitable for general glazing purposes.
Greenhouse—Double strength thickness available in sizes shown in selection chart below.

types and general uses

The following types are available in the thicknesses, qualities and sizes shown in the selection chart below.

window glass—used for glazing windows, doors and storm sash in homes, apartments, and other types of buildings. Single strength thickness bears a red label; double strength is identified by a blue label.

heavy sheet glass—for glazing windows and doors where greater strength is required, but where slight distortion is not objectionable; shelving, display cases, window ventilators, jalousies and furniture tops. Heat absorbing heavy sheet is also available.

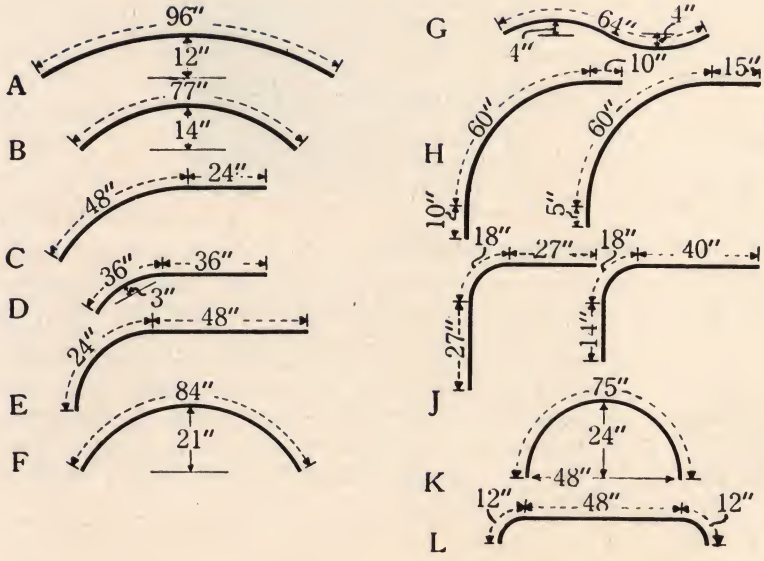
picture glass—for covering pictures, photographs, maps and prints; projectorslides, novelties, instrument dials, etc.

selection

types	classification	quality	thickness	approx. wt. sq. ft. in ounces	maximum sizes* (under normal conditions)	avg. solar radiation: ultra-violet	avg. solar radiation: illuminant C (avg. daylight)	avg. solar radiation: total solar radiation†
window	single strength	AA, A, B	.085—.100	19.50	90 united in.**	76.6	90.8	87.3
	double strength	AA, A, B	.115—.133	26	120 united in.**	73.4	90.4	85.7
	double strength	Greenhouse	.115—.133	26	16″ x 18″, 18″ x 20″, 16″ x 24″, 20″ x 20″	73.4	90.4	85.7
heavy sheet	3/16″	AA, A, B	.182—.205	40	76″ x 120″	68.8	89.6	82.9
	7/32″	AA, A, B	.205—.230	45	76″ x 120″	66.8	89.2	81.5
	7/32″ heat absorbing	Standard	.205—.230	45	max. 50 sq. ft. per lt.	47.5	76.6	51.2††
picture		AA, A, B	.043—.053	9 to 11	60 united in.**	81.6	91.5	89.6
		AA, A, B	.058—.068	12 to 14	60 united in.**	79.9	91.3	88.8
		AA, A, B	.070—.080	15 to 17	60 united in.**	78.1	91.0	88.0

*All sheet glass has a characteristic surface wave, which is more apparent in larger sizes. This should be taken into consideration in the kind of glass you specify.
†Solar radiation values are normal incidence transmittances for source that has energy distribution of the sun at 30° altitude (air mass equals two) (approx. 3% ultraviolet, 45% visible rays, 52% infrared).
**United inches is sum of width plus length.
††On the basis of 1/4" thickness, this glass transmits less than 50% total radiation as required by Federal Specification DD-G-451a.

maximum sizes of bends (in inches)*



Types A, B, C, D, E, F, H, J

	Girth	Height
Regular Plate 1/8″ 1/4″	60 or 48 144 or 120	48 or 60 120 or 144
Heat Absorbing	96 or 138	138 or 96
Single Strength **Double Strength**	24 60 or 48	48 48 or 60
Heavy Sheet 3/16″ 7/32″	60 84	84 96

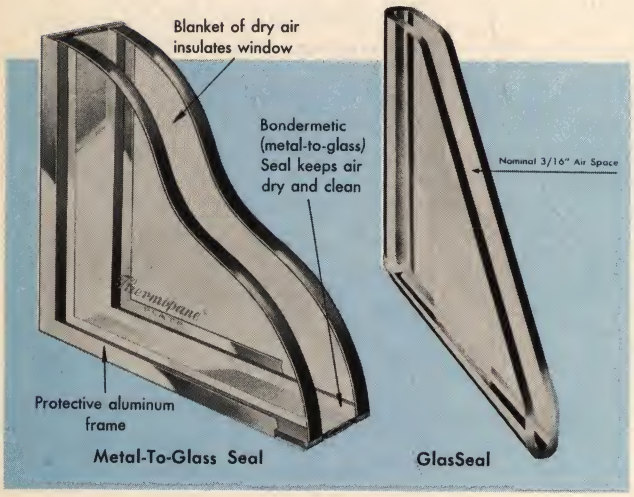
Types G, K, L
Same As Above Except

Regular Plate 1/4″	110	144

*36 inch maximum rise regardless of type of bend.

LOF GLASS

Thermopane
INSULATING GLASS



BONDERMETIC SEAL

Thermopane was the first successful, mass-produced, insulating unit of its kind for general use. It is a factory-built glass unit composed of two or more lights of glass separated by ¼" or ½" of dehydrated captive air, hermetically sealed around the edges at the factory with a metal-to-glass bond. The edge is further protected by a metal channel which insures maximum glass strength, provides greater ease of handling and minimizes the chance for edge chipping during installation. The glass is specially washed, the air scientifically cleaned and dried, and the Bondermetic Seal® applied at atmospheric pressure. The unit is not vacuum sealed.

GLASSEAL

GlasSeal® *Thermopane* units are available in either two panes of DSA or SSA window glass, both with $\frac{3}{16}$" air space. Use is limited to altitudes of not over 3,000 feet.

GlasSeal units fabricated with DSA window glass are made in sixty-five standard sizes (see page 25), covering a wide range of large-volume popular types of windows, ranging from 14" to 38" in one direction to 62" in the other direction within a total area of 1,440 square inches.

GlasSeal units fabricated with SSA window glass are available at this time in 28 standard sizes (see page 25) ranging from 20" to 40" in width to 16" to 28" in height within a total area of 1,120 square inches. SSA units are lighter in weight than DSA units of the same size, but the insulating efficiency is as high. A sash manufacturer can design and engineer a double-hung sash of standard thickness which can be properly balanced.

Units of *GlasSeal*-SSA weigh slightly over 10 ozs. less per sq. ft, than *GlasSeal*-DSA units. A comparison of thickness is given in the following table:

types of GlasSeal	unit thickness	wt. per sq. ft.
single strength	.375" ± .050"	2.4 lbs.
double strength	.450" ± .050"	3.05 lbs.

NOTE: See table on page 24 for complete data on types of glass in *Thermopane*.

SSA and DSA units are available in non-standard sizes in minimum quantities of 500 per size, subject to factory approval. **For further information, contact your nearest LOF District Office.**

Thermopane, being factory-fabricated, cannot be altered after manufacture without damaging the unit.

All *Thermopane* units are now inscribed with the word "Thermopane" in the lower right-hand corner. This inscription will be from 1" to 1¼" in length depending on the size of the unit and will be located just above and to the left of the sash line after glazing.

characteristics

air space

Metal seal *Thermopane* is manufactured with ¼" and ½" air spaces only. GlasSeal *Thermopane* is manufactured with 3/16" air space only. For air space efficiency, see table on page 13.

quality of glass

Sheet (Window Glass)	"A" Quality only
Polished Plate, Regular	Glazing Quality
Parallel-O-Grey Plate	Glazing Quality
Heat Absorbing Plate	Glazing Quality
Tuf-flex	Standard Quality

combinations of glass

Thermopane units are available in various glass combinations, but glass thicknesses in the same unit cannot vary over 1/16". For example, a unit cannot be manufactured with one light of ¼" thickness and one light of ⅛" thickness.

kinds and thicknesses of glass

	kind	thickness
Libbey-Owens-Ford	*Sheet (Window Glass)	
	Single Strength "A"	3/32"
	Double Strength "A"	⅛"
	3/16" Heavy Sheet	3/16"
	Polished Plate	
	Regular	⅛", ¼"
	Parallel-O-Grey	¼"
	Heat Absorbing	⅛", ¼"
	Tuf-flex	¼"

*Picture glass cannot be used.

surface finishes

Sandblast finish is available, but details must be submitted for our approval and orders are subject to our acceptance. If approved, sandblast is applied to the air space surface only, either to one or both lights in order to provide cleanliness. Exterior sandblast will not be furnished. The sandblasting of glass reduces its strength 50%, and consequently we do not recommend *Thermopane* units with a sandblast surface.

SEE THERMOPANE SPECIFICATIONS ON PAGE 26

Thermopane warranty

We make no warranty, express or implied, except that for a period of five (5) years from the date of manufacture we warrant that under normal conditions material obstruction of vision, resulting from film formation or dust collection between the interior glass surface of *Thermopane* will not occur.

This warranty will be void if *Thermopane* is not handled or installed in accordance with our instructions, or is damaged in handling or installation, or if the unit is subjected to stresses resulting from localized application of heat, which causes excessive temperature differentials over the glass surfaces or edges, or if strain is applied to the unit by movement of the building, or if provisions have not been made in accordance with sound practice for adequate expansion or contraction of framing members.

Our maximum liability under this warranty shall be the delivery of replacement lights of *Thermopane* to the railroad shipping point nearest the place of installation.

This warranty does not apply to such replacement lights beyond the original five-year period applying to the original unit; nor does it apply when *Thermopane* is used in ships or vehicles or is used outside continental United States.

No representative of ours has authority to change or modify this warranty in any respect.

shapes and pattern cut

Thermopane will be manufactured to straight edge patterns. Units can be produced with four or five sides but no angle can be less than 45° nor any one edge less than eight inches. Triangles cannot be furnished. The maximum sizes of pattern cut units must be within the limitations of the square and rectangular dimensions shown in columns three and four of the table on page 24. When both dimensions exceed 50" the units will be manufactured with ½" air space only.

Cutouts, notches, holes or finger pulls are not available. Bent shapes are not available. Circles are not available.

thermal shock

The room side light of a *Thermopane* unit may crack if excessive hot air is directed on to it from a hot air furnace register or an electric wall heater. This is true of single glass as well as *Thermopane*. Breakage may also occur if the glass is painted with signs, Christmas decorations, etc. Curtains, venetian blinds or heavy draperies hung too close to the room side light may act as a heat trap increasing temperatures in area covered and cause glass failure. Ventilation should be provided at the bottom, top and sides for air movement on the face of the glass.

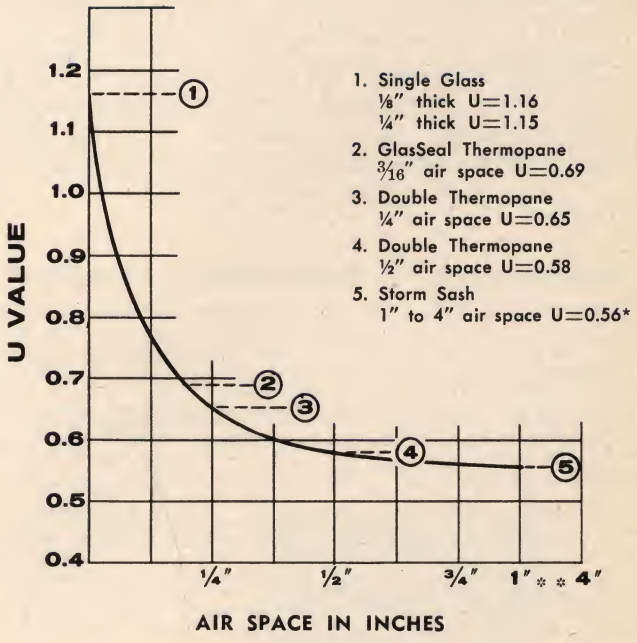
metal sash

Engineering practice dictates the need of sufficient columnar strength and for expansion joints in metal sash members. While the design and spacing of expansion joints should be the work of the architect, engineer or metal manufacturer, all metal details should be carefully checked when the job is taken off to determine if the sash has enough rabbet depth and height and is of sufficient strength to properly accept *Thermopane*.

heat transmission (U value)

Thermopane units provide a high resistance to heat flow, varying with the number of panes and the thickness of the air space used. Relation between heat lost by conduction and convection from single glazing and *Thermopane* is in direct proportion to their coefficients of heat transmission, disregarding the heat gain from the influx of solar energy.

variation of winter U value with air space thickness



*This value applies to storm sash with a sealed air space. Air leakage present in virtually all storm windows will, in effect, raise this value.
**There is no practical difference in the thermal resistance of air spaces between 1" and 4" thick.

U value—winter

Over-all heat transmission coefficient (U value) varies with ranges of temperature at which coefficient is determined. For most practical heat loss calculations coefficient U can be the value determined at 10° outside temperature, 70° inside temperature, 15 mph outside air velocity and natural convection inside. Therefore, the U values shown here apply to winter heat losses. (For U values which apply to summer heat gains for air conditioning, see page 16).

type	thickness	U-value		
single glass	⅛″ ¼″	1.16 1.15		
double Thermopane single strength	⅛″ or ¼″	3/16″ air space* .69	¼″ air space .65	½″ air space .58
triple Thermopane	¼″		¼″ air space .47	

*GlasSeal Thermopane only.

radiation

Thermopane windows can be made of different combinations of glass to provide a wide range of physical characteristics. The use of Heat Absorbing with standard plate glass reduces transmission of solar radiation.

A window double-glazed with clear flat glass transmits more daylight than an equal area of any other form of glass insulating unit. This is a distinct advantage on dark days. According to the table below, a *Thermopane* unit composed of two panes of ⅛″ or ¼″ thick clear glass transmits approximately 81% of daylight. Where reduction of glare is desired, *Thermopane* units made with a heat absorbing type of glass may be used to advantage.

calculation of light transmission

Light transmission of any combination of glasses can be obtained by multiplying their individual transmissions. Visible transmission for average daylight (illuminant C) of various types of glasses used in *Thermopane* combinations is given in the following table:

	type of glass	per cent transmission: ultra-violet	illuminant C	total radiation
	D.S.A. window glass	73.4	90.4	85.7
	sheet glass 3/16″	68.8	89.6	82.9
Libbey-Owens-Ford	polished plate			
	regular ⅛″	75.9	90.6	86.1
	regular or Tuf-flex ¼″	67.8	89.1	79.9
	parallel-o-grey ¼″	39.0	44.2	46.6
	heat absorbing ⅛″	58.8	83.1	63.2
	heat absorbing ¼″ or Tuf-flex heat absorbing ¼″	44.9	74.7	46.3

source of values

All values are calculated assuming the sun's energy passes through an air mass of 2. This is generally accepted as average sun light. Illuminant C encompasses the wave lengths from 400 to 700 mmu. which is the visible portion of the sun's energy.

total radiation defined

Tables of infrared transmittance are not shown. Instead, the table of total radiation transmittance for solar energy is given for the following reasons: Since infrared energy is most frequently measured by the heat it produces, and since this kind of radiant energy was discovered through its heating effect, it has come to be generally assumed that only the infrared produces heat. This assumption is not correct. All radiant energy may be converted into heat if it is absorbed, and none of it is truly heat until after it has been absorbed and converted. There is more energy per wave in ultraviolet than in infrared and the visible also is more effective in producing heat than the infrared when it is absorbed. Solar energy is comprised of approximately 50% infrared and so it is not proper to compare the radiant energy transmitting properties of two glasses on the basis of their infrared transmittance alone.

condensation points

These charts show the combination of cold and warm side temperatures and warm side humidities at which condensation occurs where there is normal free air movement (natural convection), on the warm side and 15 mph outside air velocity.

Note that, at the same given inside and outside temperatures, *Thermopane* permits much higher inside relative humidity than possible with single glazing.

Condensation points on ⅛″ glass may be considered same as ¼″ glass since the table on page 15 shows that their warm side temperatures are substantially the same.

surface temperatures—warm side

The warm side surface temperature of *Thermopane* is appreciably higher than that of single glazing. It has been usual to locate sources of heat near glass areas in buildings to offset both the conducted loss of heat from the room and the radiant loss from the bodies of persons near such cold glass areas.

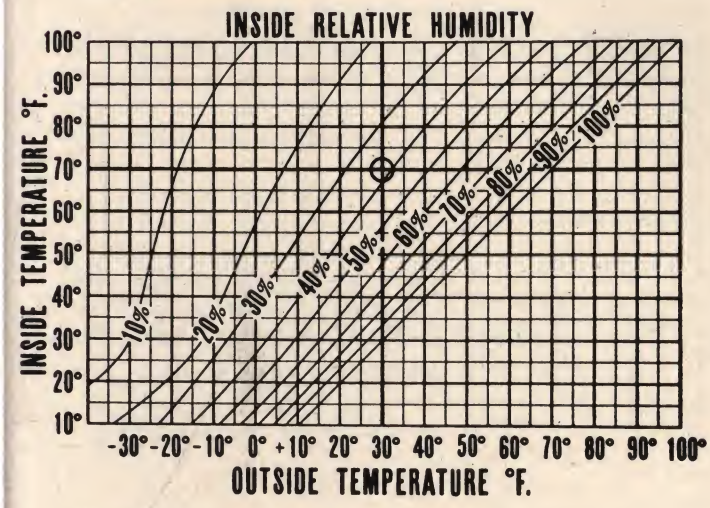
The higher glass surface temperature of *Thermopane* greatly reduces the amount of heat that must be supplied near such areas, permitting greater flexibility in room design. Thus, the physical comfort of persons stationed near glass areas is greatly increased; greater room occupancy is achieved by placing working desks nearer window areas with a resultant saving of floor space.

Thermopane permits a more healthful living condition and reduces the possibility of sash, sill, wall and floor deterioration by water drippage.

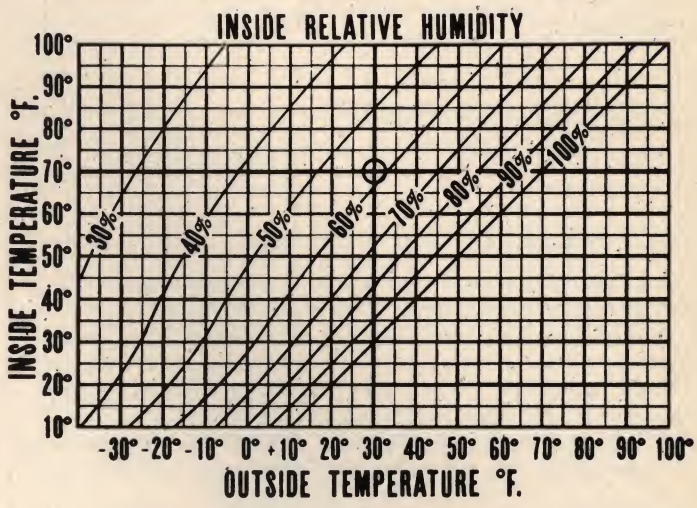
SEE THERMOPANE SPECIFICATIONS ON PAGE 26

INSIDE SURFACE CONDENSATION POINTS AND INSIDE RELATIVE HUMIDITY (RH)

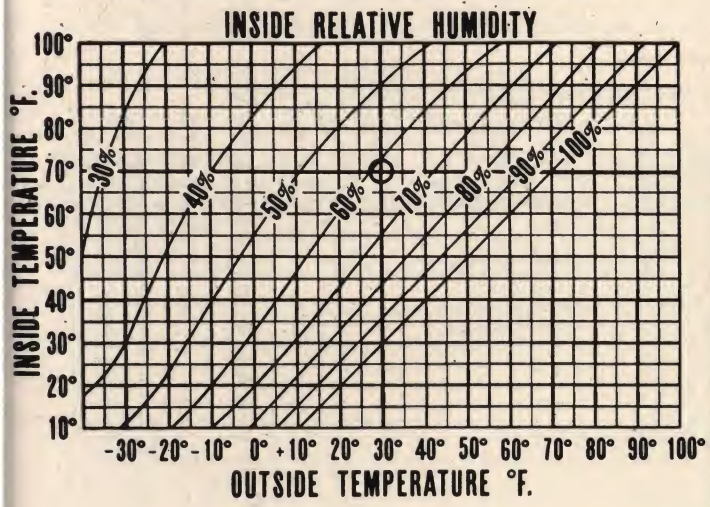
1/4″ polished plate



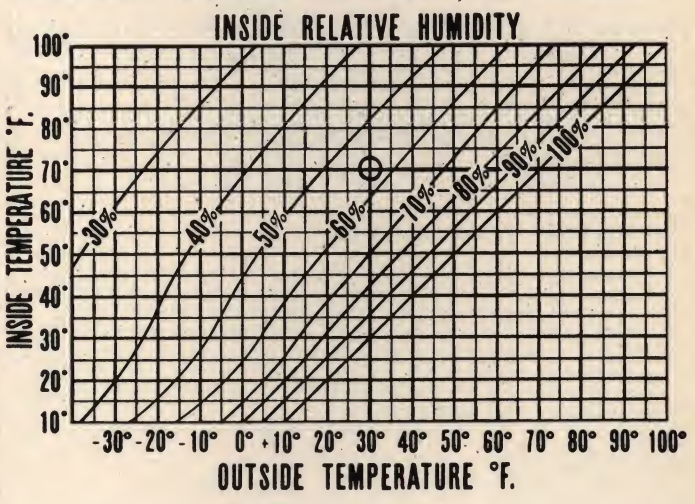
double *Thermopane* 1/4″ plate 1/4″ air space



double *Thermopane* 1/4″ plate 1/2″ air space



GlasSeal *Thermopane* 1/8″ sheet 3/16″ air space



temperatures of glass surface on warm side

and per cent relative humidity (RH) at which condensation occurs
(dry bulb air temperature 70° F. on warm side)

no. of panes	glass thickness	air space thickness	dry bulb air temperatures on cold side: −30° T	−30° RH	−20° T	−20° RH	−10° T	−10° RH	0° T	0° RH	+10° T	+10° RH	+20° T	+20° RH	+30° T	+30° RH
single glass	1/8″	none	2°	5.5	9°	8.5	15°	12.0	22°	16.0	28°	21.0	35°	28.0	42°	36.5
	1/4″	none	5°	6.0	11°	9.5	18°	13.0	24°	17.0	30°	22.5	37°	29.5	43°	37.5
double Thermopane	1/8″	1/4″	35°	28.0	38°	31.5	41°	35.5	44°	39.5	47°	45.0	51°	50.0	54°	56.5
		1/2″	38°	31.0	41°	32.0	43°	38.0	46°	43.0	49°	48.0	52°	54.0	55°	60.0
	1/4″	1/4″	36°	28.5	39°	32.5	42°	36.5	45°	41.0	48°	47.0	51°	52.0	54°	58.0
		1/2″	39°	31.5	42°	33.0	45°	40.0	47°	45.0	50°	50.5	53°	56.0	56°	62.0
triple Thermopane	1/4″	1/4″	46°	41.5	48°	44.5	49°	49.0	52°	54.0	54°	58.0	57°	63.0	59°	68.5
GlasSeal Thermopane	1/8″	1/16″	34°	26.0	37°	29.5	40°	33.0	43°	37.0	46°	42.5	50°	49.0	53°	55.0

Above chart is based on normal convection currents on room side when unobstructed by curtains, draperies or heavy muntins. Condensation will occur at slightly higher inside temperatures than as shown on the charts if curtains, shades or the construction of the window prevent free air movement over the surface of the glass.

L-O-F GLASS

Thermopane
INSULATING GLASS

reduction of cooling load

Summer heat transmitted through glass is divided into three types or may be said to come from three sources:

(1) direct solar radiation

Where the window is exposed to direct sunshine.

(2) sky or diffuse radiation

In passing through the earth's atmosphere, much of the solar radiation is scattered, reflected and absorbed by dust particles, air molecules and water vapor. This relatively small percentage of direct solar radiation, called sky or diffuse radiation, will cause some heat transmission through a window even though it is not exposed directly to the sun.

(3) outdoor-indoor temperature differential

The air conditioning engineer usually bases his cooling calculations on a 20° F differential between outdoor and indoor temperatures. This difference means that part of the outdoor heat will be transmitted to the inside through a window by conduction and convection.

U value — summer

Summer air cooling calculations are usually based on an outside air temperature of 95° F. and exterior wind velocity of 7.5 mph, a room temperature of 75° F. U values for these summer conditions are given below. (For U values which apply to winter heat losses, see page 14).

type	glass thickness	U values		
single glass	⅛"	1.07		
	¼"	1.06		
double Thermopane	⅛" or ¼"	3/16" air-space* 0.64	¼" air space 0.61	½" air space 0.56
triple Thermopane	¼"		¼" air space 0.45	

*GlasSeal Thermopane only.

solar radiation transmission

When solar radiation strikes a glass surface, part is reflected, part absorbed and part transmitted. For diagrams which indicate graphically how heat and light transmittances vary with different single glazings and with various glass combinations in *Thermopane*, ask for L.O.F folder, form M-22.

Cooling loads for residences are calculated on a different basis than those for commercial buildings because residences are generally based on cooling 24 hours per day in contrast to commercial buildings where cooling is generally utilized only about 12 hours per day. In addition, there are other differences which contribute to the need for a different basis for the calculations.

cooling load calculations

residential buildings

The cooling load due to unshaded glass areas in residences is determined using the values in the table below and the glass area on each exposure. The total cooling load is simply the sum of the products of the heat gain per square foot times the glass area for each exposure.

example

Calculate the cooling load for a home located in Columbus, Ohio (40 deg. north latitude) and having the following areas of D.S.—D.S. *Thermopane;* north —100 sq. ft., east—50 sq. ft., south—300 sq. ft., and west—50 sq. ft.

exposure	sq. ft.	cooling load per sq. ft.	cooling load each exposure
north	100	14	1400
east	50	42	2100
south	300	27	8100
west	50	42	2100
total cooling load Btu per hour			13700

residential design cooling load due to windows*

north latitude	kind of glass	Btu per (hour) (square foot) north	east	south	west
30°	D.S. Sheet	20	49	23	49
	¼" Plate	20	47	22	47
	¼" H.A. Plate**	17	36	19	36
	D.S. —D.S. Thermopane	15	40	17	40
	¼" Pl.—¼" Pl. Thermopane	14	37	16	37
	H.A.**—Plate Thermopane	11	27	13	27
40°	D.S. Sheet	19	50	34	50
	¼" Plate	19	48	33	48
	¼" H.A. Plate**	16	37	26	37
	D.S.—D.S. Thermopane	14	42	27	42
	¼" Pl.—¼" Pl. Thermopane	14	38	25	38
	H.A.**—Plate Thermopane	11	28	18	28
50°	D.S. Sheet	20	53	42	53
	¼" Plate	19	50	40	50
	¼" H.A. Plate**	17	39	32	39
	D.S.—D.S. Thermopane	15	44	33	44
	¼" Pl.—¼" Pl. Thermopane	14	40	32	40
	H.A.**—Plate Thermopane	11	29	23	29

*Values based on data contained in the ASHAE Guide interpreted to conform with accepted methods of cooling-load predictions. Values for residential buildings are average heat gains for a design day. A design day is an average, clear August 1 with a maximum outdoor temperature of 95° F. An outdoor wind velocity of 7½ mph is assumed throughout. **Heat gain values for Parallel-O-Grey plate are substantially the same as those for Heat Absorbing plate.

SEE THERMOPANE SPECIFICATIONS ON PAGE 26

Cooling loads for residences are calculated on a different basis than those for commercial buildings because residences are generally based on cooling 24 hours per day in contrast to commercial buildings where cooling is generally utilized only about 12 hours per day. In addition, there are other differences which contribute to the need for a different basis for the calculations.

non-residential buildings

The portion of the cooling load due to glass in commercial, industrial, and public buildings is calculated using values in the table below. The method requires four sets of calculations, one or more of which may be eliminated by inspection. The necessary steps are as follows:

1. Determine the total cooling load for each exposure using values obtained from the table in the next column times the glass area involved.
2. For each exposure determine the combined glass area of the other three exposures and multiply this area by the value for a north exposure.
3. Add each value determined in step 1 to its corresponding value obtained in step 2. The largest of the four values obtained by this procedure is the design cooling load.

non-residential design cooling load due to windows*

north latitude	kind of glass	Btu per (hour) (square foot) north	east	south	west
30°	D.S. Sheet	27	144	44	157
	¼" Plate	26	136	42	150
	¼" H.A. Plate**	21	97	34	112
	D.S.—D.S. Thermopane	21	125	36	133
	¼" Pl.—¼" Pl. Thermopane	19	115	32	124
	H.A.**—Plate Thermopane	15	78	25	88
40°	D.S. Sheet	27	144	78	157
	¼" Plate	26	136	75	150
	¼" H.A. Plate**	21	96	57	111
	D.S.—D.S. Thermopane	21	125	66	133
	¼" Pl.—¼" Pl. Thermopane	20	115	61	124
	H.A.**—Plate Thermopane	15	78	45	88
50°	D.S. Sheet	27	142	111	155
	¼" Plate	26	134	105	149
	¼" H.A. Plate **	21	96	80	111
	D.S.—D.S. Thermopane	21	123	93	131
	¼" Pl.—¼" Pl. Thermopane	19	113	87	122
	H.A.**—Plate Thermopane	16	77	63	87

*Values based on data contained in the ASHAE Guide interpreted to conform with accepted methods of cooling-load predictions. Values for non-residential buildings are 70 per cent of the maximum heat gains on a design day. A design day is an average, clear August 1 with a maximum outdoor temperature of 95° F. An outdoor wind velocity of 7½ mph is assumed throughout.

**Heat gain values for Parallel-O-Grey plate are substantially the same as those for Heat Absorbing plate.

example

Find the cooling load due to glass for an office building in Houston, Texas (30 deg. north latitude) glazed with the following areas of H.A.—Plate *Thermopane;* north—20,000 sq.ft., east—15,000 sq. ft., south—25,000 sq. ft. and west—10,000 sq. ft.

step 1

exposure	sq. ft.	cooling load per sq. ft.	cooling load each exposure
north	20,000	15	300,000
east	15,000	78	1,170,000
south	25,000	25	625,000
west	10,000	88	880,000

step 2

exposure	sq. ft. on all other exposures	cooling load per sq. ft.	cooling load for all other exposures
north	50,000	15	750,000
east	55,000	15	825,000
south	45,000	15	675,000
west	60,000	15	900,000

step 3

north	300,000	
	750 000	
	1,050,000	Btu per hour
east	1,170,000	
	825,000	
	1,995,000	Btu per hour
south	625,000	
	675,000	
	1,300,000	Btu per hour
west	880,000	
	900,000	
	1,780,000	Btu per hour

The total cooling load due to the glass would then be 1,995,000 Btu per hour

strength calculations

Thermopane should be calculated on the strength of the outboard glass with little, if any, allowance for the variable support from the inboard glass. Where extra strength is required to withstand high pressures which would rupture standard glasses, Thermopane can be made with Tuf-flex, a tempered plate glass. Tuf-flex, which is 3 to 5 times stronger than regular plate glass, is made by a special process of reheating and cooling clear plate glass. The tempering of glass in the Tuf-flex process increases the average modulus of rupture from 6,000 to 30,000 p.s.i.

In calculating the performance of Thermopane where unusual pressures exist, as in exterior glazing of high buildings to withstand high wind velocities, the pane on the pressure side may be examined for strength by the formula:

$$PA = 3.48\ Mt^2F$$

If the modulus of rupture (M) for standard glass is taken at 6000 pounds per square inch, this formula becomes:

$$P = \frac{20880\ t^2F}{AS}$$

P = the pressure in pounds per square foot
t = the thickness in inches
A = the area in square feet
F = the factor for ratio of width to height of pane
S = Safety factor (1 to 10)

ratio width-height	factor (F)	ratio width-height	factor (F)
10:10	1.000	5:10	1.25
9:10	1.005	4:10	1.45
8:10	1.02	3:10	1.8
7:10	1.07	2:10	2.6
6:10	1.14	1:10	5.0

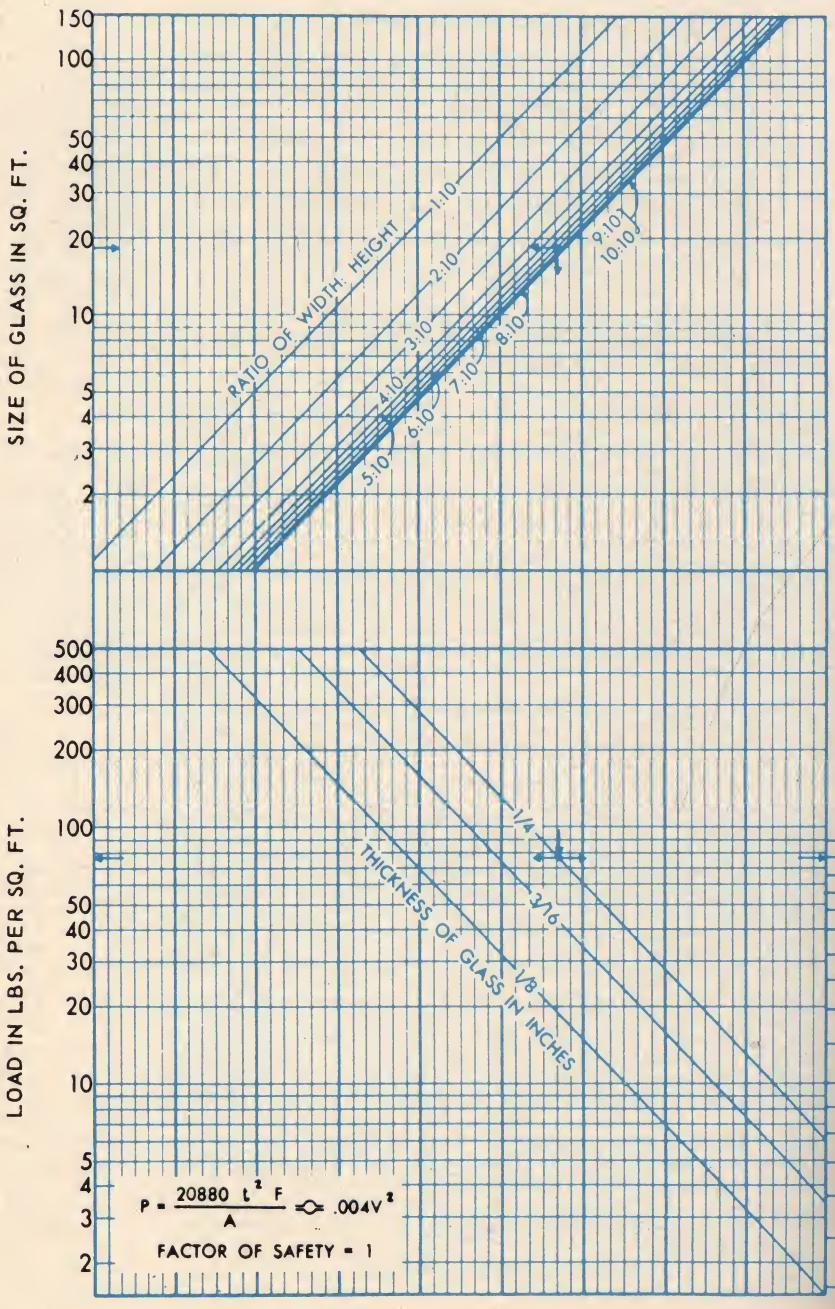
The wind velocities in miles per hour which are equivalent to given pressures in pounds per square foot may be found from the formula

$$PRESSURE = 0.004\ V^2$$

glass panes

A factor of safety of 1 has been included in chart opposite. Appropriate factor of safety to be used is a matter of engineering judgment governed by the individual application. If application involves a substantial hazard, safety factor of 5 to 10 is recommended. Decision should be made at discretion of the architect or engineer.

As an example of the use of the chart, suppose we wish to design a *Thermopane* panel of 17.5 square feet with a width to height ratio of 7:10 (5.0 feet wide, by 3.5 feet high). Read across the upper part of the chart from the 17.5 square foot size of glass to the diagonal line 7:10 for the ratio of width to height. At this intersection read down to the lower diagonal lines for the thickness of glass. The intersection with the diagonal line shows that a ¼" thickness will stand 78 pounds per square foot on the left hand scale. Reading to the right from this intersection we find this is equivalent to 140 mph wind velocity.



SEE THERMOPANE SPECIFICATIONS ON PAGE 26

glazing details

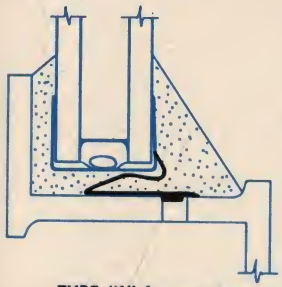
neoprene setting blocks and metal glazing clips

Neoprene setting blocks and spacer strips for ½", ¾", ⅞", and 1" thick units, and the metal glazing clips for ½" units (as shown) must be used for the correct installation of *Thermopane* (available from L.O.F stock) if the L.O.F Warranty is to apply. Under no circumstances should units be forced into any type of sash.

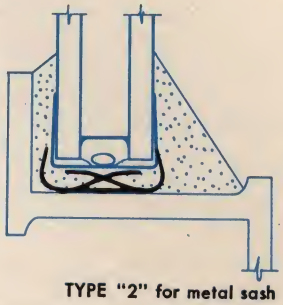
Glazing clips and Neoprene spacer strips shall be spaced evenly at sides and top, as illustrated.



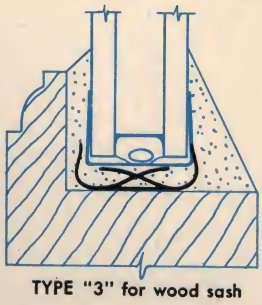
Setting blocks shall be installed one-quarter the distance in from the outer edge at the sill.



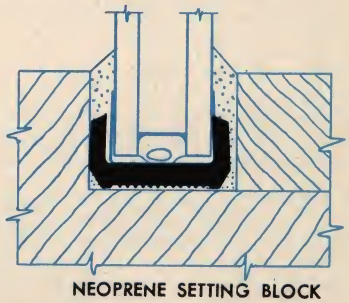
TYPE "1" for metal sash



TYPE "2" for metal sash



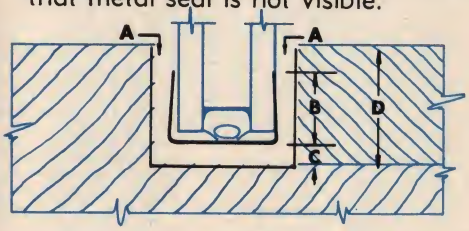
TYPE "3" for wood sash



NEOPRENE SETTING BLOCK

installation clearances and rabbet depths

Factory-fabricated, *Thermopane* dimensions cannot be changed at point of use. Adequate clearances and rabbet depths must be provided for all units so that metal seal is not visible.



	½" AND ¾" UNITS ⅛" GLASS	⅝" AND ⅞" UNITS 3/16" GLASS	¾" AND 1" UNITS ¼" GLASS
(A) FACE CLEARANCE	⅛"	⅛"	⅛"
(B) METAL EDGE DEPTH	⅜"	⅜"	⅜"
(C) EDGE CLEARANCE	⅛"	¼"	¼"
(D) MINIMUM RABBET DEPTH	⅝"	¾"	¾"

glazing information

Thermopane is a factory-sealed insulating glass unit which is subject to continuous movement due to the changes of temperature and barometric pressure. Adequate provision should be made for expansion and contraction of all metal glazing members—particularly long continuous expanses of metal members—to provide against any pressure on the glass. To insure against breakage or seal failure, a cushioning material such as glazing compound, Neoprene, or Vinyl, must be used so there is no contact between sash and glass at any point. Therefore, the warranty for *Thermopane* does not apply unless the glazing instructions furnished by Libbey-Owens-Ford are followed in every detail.

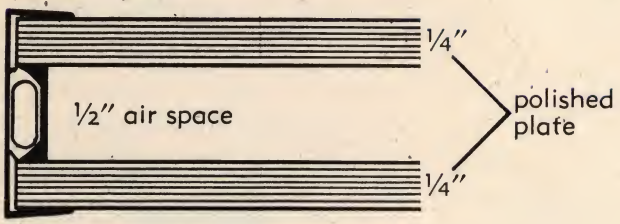
1. *Thermopane* must not be installed unless sash opening is square and plumb so that proper face and edge clearance can be maintained.
2. Face clearances between glass and stops must not be less than ⅛"
3. Edge clearances between glass and frame must not be less than ⅛" on each edge for ½" thick *Thermopane*, or ¼" on each edge for units over ½" thick.
4. Use a good knife-grade, non-hardening glazing compound, free from corrosive materials. DO NOT USE PUTTY and do not dilute or thin.
5. To insure uniform clearances use L-O-F Neoprene Setting Blocks and Spacers on all units set with face stops.
6. Use #1 or #2 L-O-F Metal Glazing Clips for ½" thick *Thermopane* in sash without face stops.
7. Locate setting blocks or glazing clips on bottom of unit in from each corner a distance of one-fourth the width of the glass. Use spacer strips at sides and top of unit to insure uniform setting.
8. Use full bed of glazing compound on bottom of sash, enough at sides and top to make weather tight seal. If a void is left in the bottom rabbet, then weep holes should be provided for drainage of moisture to the exterior.
9. Trim and slope glazing compound from glass to outside stop for water drainage.
10. Do not nip corners or grind edges.
11. All units manufactured with *Thermopane* Heat Absorbing Glass must have Heat Absorbing Glass to outside only.
12. Total or partial covering of glass with paper and painted areas on glass (signs, etc.) should be avoided. Such coverings act as a heat trap and may cause glass failure due to increase of temperature of areas covered.

LOF GLASS

Thermopane
INSULATING GLASS

windows available for standard size Thermopane

2 panes of 1/4" polished plate
1/2" air space



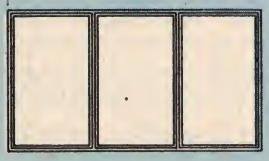
For a complete list of standard Thermopane sizes, see page 25.

This does not purport to be a complete list of manufacturers of sash for Thermopane. Neither does it show all the styles of sash made by the manufacturers listed. It is merely a guide in contacting your normal source of supply for Thermopane sash. Window openings will vary according to individual sash manufacturer's specifications. Therefore, manufacturers should be contacted for full information regarding their units.

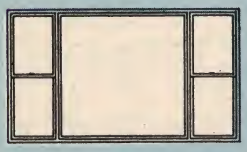
picture window



window wall



standard wood picture window units with flanking double hung sash



standard wood picture window units with flanking awnings



standard aluminum picture window units with flanking casements



Sash Manufacturer		Sash Opening Width Height	Glass Size Width Height
Any manufacturer shown on this page can provide picture window sash without flanking units			Use any size shown on this page
Window walls can be constructed by using a series of picture window sash separated by mullions.		Glass sizes shown are for 8' and 8½' ceiling heights respectively, allowing 1'-6" from floor to sill and 1'-0" from head to ceiling.	42" x 66" 72½" x 66" 84" x 66" 96" x 66" 42" x 72" 84" x 72" 96" x 72"
Andersen Corp. Bayport, Minn.	Edward Hines Lumber Co. Chicago 8, Ill.	3'-2 3/16" x 11'-11 3/4" 4'-4" x 4'-2"	36" x 93" 48½" x 46"
Anderson Mfg. Co., Inc. Owensboro, Ky.	Huttig Mfg. Co. Muscatine, Iowa	5'-0" x 4'-2" 5'-8" x 4'-2"	56½" x 46⅛" 64½" x 46"
Binswanger and Co., Inc. Richmond 21, Va.	Huttig Sash & Door Co. St. Louis, Mo.	6'-4" x 4'-2" 4'-4" x 4'-6"	72½" x 46" 48½" x 50"
Caradco, Inc. Dubuque, Iowa	Ideal Company Waco, Texas	5'-0" x 4'-6" 5'-8" x 4'-6"	56½" x 50" 64½" x 50"
Chicago & Riverdale Lumber Co. Chicago, Ill.	Malta Mfg. Co. Malta, Ohio	6'-4" x 4'-6" 7'-0" x 4'-6"	72½" x 50" 80½" x 50"
Cole Mfg. Co. Memphis, Tenn.	Lumber Dealers, Inc. Denver 17, Colo.	8'-4" x 4'-6" 3'-10 5/8" x 4'-6"	96½" x 50" 46⅛" x 52½"
Curtis Companies, Inc. Clinton, Iowa	Radford Co. Oshkosh, Wis.	4'-10 5/8" x 4'-6" 5'-10 5/8" x 4'-6"	58⅛" x 52½" 70⅛" x 52½"
Dealers Window Corp. Toledo, Ohio	R-Millwork Company Muscatine, Iowa	4'-4" x 5'-2" 5'-8" x 5'-2"	48½" x 58" 64½" x 58"
Farley & Loetscher Mfg. Co. Dubuque, Iowa	Rock Island Millwork Rock Island, Ill.	6'-4" x 5'-2" 7'-0" x 5'-2"	72½" x 58" 80½" x 58"
Woodco, Inc. North Bergen, N. J.	Weather-Seal, Inc. Barberton, Ohio	8'-4" x 5'-2" 10'-0" x 5'-2"	96½" x 58" 116½" x 58"
Hallack & Howard Lumber Co. Denver, Colo.	Wisconsin Window Unit Co. Merrill, Wis.	5'-0" x 5'-10" 5'-8" x 5'-10" 6'-4" x 5'-10"	56½" x 66" 64½" x 66" 72½" x 66"
Dealers Window Corp. Toledo, Ohio Gate City Sash & Door Co. Fort Lauderdale, Fla.		Buck Opening 75⅛" x 51" 67⅛" x 51" 51⅛" x 51" 72¾" x 57" 60¾" x 57" 48¾" x 57" 119⅛" x 63"	72½" x 46" 64½" x 46" 48½" x 46" 70⅛" x 52½" 58⅛" x 52½" 46⅛" x 52½" 116½" x 58"
Reynolds Metals Co. Louisville 1, Ky. Ware Laboratories, Inc. Miami, Fla.		4'-5⅛" x 4'-2⅜" 4'-5⅛" x 5'-3" 5'-9⅜" x 4'-2⅜" 5'-9⅜" x 5'-3"	50⅜" x 47¾" 50⅜" x 60⅛" 66⅜" x 47¾" 66⅜" x 60⅛"

SEE THERMOPANE SPECIFICATIONS ON PAGE 26

FLAT GLASS

standard wood picture window units with flanking casements



aluminum sash picture window units



standard aluminum picture window units with flanking double hung sash



residential steel sash picture window units



standard wood picture window units with louvres



Sash Manufacturer	Sash Opening Width	Sash Opening Height	Glass Size Width	Glass Size Height
		(Including Casements)		
Andersen Corp. Bayport, Minn. Only sizes marked#	#6′-5¼″	x 3′-2³⁄₁₆″	#35⅛″	x 36″
	#8′-1″	x 3′-2³⁄₁₆″	#55¼″	x 36″
	#9′-8¾″	x 3′-2³⁄₁₆″	#75″	x 36″
Brown-Graves Co. Akron, Ohio. For list of sizes contact manufacturer.	#6′-5¼″	x 4′-2⅜″	#35½″	x 48⅛″
	#8′-1″	x 4′-2⅜″	#55¼″	x 48⅛″
	#9′-8¾″	x 4′-2⅜″	#75″	x 48⅛″
Curtis Companies, Inc. Clinton, Iowa. For list of sizes, contact manufacturer.	7′-½″	x 4′-5″	46⅛″	x 52½″
	8′-½″	x 4′-5″	58⅛″	x 52½″
	9′-½″	x 4′-5″	70⅛″	x 52½″
Dealers Window Corp. Toledo, Ohio	#6′-5¼″	x 5′-2³⁄₁₆″	#35½″	x 60⅜″
	#8′-1″	x 5′-2³⁄₁₆″	#55¼″	x 60⅜″
	#9′-8¾″	x 5′-2³⁄₁₆″	#75″	x 60⅜″
Farley & Loetscher Mfg. Co. Dubuque, Iowa. Only sizes marked‡	#3′-10¾″	x 3′-2³⁄₁₆″	#44½″	x 36″
	#5′-11″	x 5′-2³⁄₁₆″	#68¾″	x 36″
	#11′-11¾″	x 4′-2⅜″	#93″	x 48⅛″
Roiscreen Co. Pella, Iowa. Only sizes marked*.	#3′-10¾″	x 4′-2⅜″	#44½″	x 48⅛″
	#5′-11″	x 4′-2⅜″	#68¾″	x 48⅛″
Rock Island Millwork Co. Rock Island, Ill. For list of sizes, contact manufacturer.	#3′-10¾″	x 5′-2³⁄₁₆″	#44½″	x 60⅜″
	#5′-11″	x 5′-2³⁄₁₆″	#68¾″	x 60⅜″
	#11′-11¾″	x 5′-2³⁄₁₆″	#93″	x 60⅜″
Wisconsin Window Unit Co. Merrill, Wis. For list of sizes, contact manufacturer.	*4′-3″	x 4′-4″	*48″	x 48″
	*6′-3″	x 4′-4″	*72″	x 48″
	*4′-3″	x 5′-4″	*48″	x 60″
	*6′-3″	x 5′-4″	*72″	x 60″
	‡6′-4″	x 5′-10″	‡72½″	x 66″
General Bronze Corp. Garden City, L. I.	4′-0″	x 4′-8″	46⅛″	x 52½″
	5′-0″	x 4′-8″	58⅛″	x 52½″
	6′-0″	x 4′-8″	70⅛″	x 52½″
Contact manufacturer for additional sizes of sash for non-standard Thermopane.	4′-0″	x 5′-0″	46⅛″	x 56½″
	5′-0″	x 5′-0″	58⅛″	x 56½″
	6′-0″	x 5′-0″	70⅛″	x 56½″
Adams & Westlake* Elkhart, Ind.	3′-2″	x 4′-2″	35½″	x 48⅛″
	4′-4″	x 4′-6″	48½″	x 50″
Cupples Products Co. Maplewood, St. Louis 17, Mo.	5′-0″	x 4′-6″	56½″	x 50″
Fleet of America Buffalo 2, N. Y.	5′-8″	x 4′-6″	64½″	x 50″
	6′-4″	x 4′-6″	72½″	x 50″
General Bronze Corp. Alwintite Div.* Garden City, L. I.	7′-0″	x 4′-6″	80½″	x 50″
	5′-8″	x 5′-2″	64½″	x 58″
Ceco Steel Products Corp. Sterling Aluminum Window Div., New York 17, N. Y.	6′-4″	x 5′-2″	72½″	x 58″
	7′-0″	x 5′-2″	80½″	x 58″
*Indicates these firms manufacture to order.				
Wm. Bayley Co. Springfield, Ohio	Hopes' Windows, Inc. Jamestown, N. Y.			
Bliss Steel Products Co. E. Syracuse, N. Y.	Mesker Bros. St. Louis, Mo.	4′-5⅛″	x 4′-2⅝″	50⅜″	x 47¾″
Ceco Steel Products Co. Chicago 50, Ill.	J. S. Thorn Co. Philadelphia 32, Pa.	4′-5⅛″	x 5′-3″	50⅜″	x 60⅛″
Fenestra, Inc. Detroit 11, Mich.	Truscon Steel Co. Youngstown, Ohio	5′-9⅜″	x 4′-2⅝″	66⅝″	x 47¾″
Michael Flynn Mfg. Co. Philadelphia 24, Pa.		5′-9⅜″	x 5′-3″	66⅝″	x 60⅛″
Wisconsin Window Unit Co. Merrill, Wis.		39⅜″	x 53¾″	35½″	x. 36″
		39⅜″	x 65¾″	35½″	x 48⅛″
		39⅜″	x 77¾″	35½″	x 60⅜″
		49⅞″	x 65¾″	46″	x 48½″
		49⅞″	x 74¾″	46⅛″	x 56½″
		49⅞″	x 89¾″	46″	x 72½″

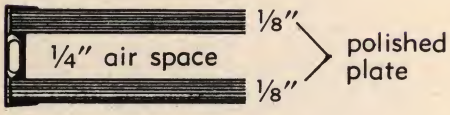
LOF GLASS

Thermopane
INSULATING GLASS

windows available for standard size Thermopane

★★ 2 panes of 1/8" polished plate or DSA window glass

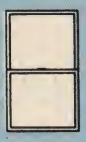
1/4" air space



For a complete list of standard Thermopane sizes, see page 25.

This does not purport to be a complete list of manufacturers of sash for Thermopane. Neither does it show all the styles of sash made by the manufacturers listed. It is merely a guide in contacting your normal source of supply for Thermopane sash. Window openings will vary according to individual sash manufacturer's specifications. Therefore, manufacturers should be contacted for full information regarding their units.

double hung wood windows (2-light)



double hung wood windows (4-light)



panel window system (wood)



ventilator for panel window system



Sash Manufacturer	Sash Opening Width	Sash Opening Height	Glass Size Width	Glass Size Height
Binswanger Co., Inc. Richmond 21, Va.	2'-0"	4'-2"	20"	22"
Chicago & Riverdale Lumber Co. Chicago, Ill.	2'-4"	4'-2"	24"	22"
Dekker-Brish Millwork Co. 148th & Indiana Dolton, Illinois	2'-4"	4'-6"	24"	24"
Woodco, Inc. North Bergen, N. J.	2'-8"	4'-6"	28"	24"
Ed. Hines Lumber Co. Chicago 8, Ill.	3'-0"	4'-6"	32"	24"
Olson Millwork Company Cedar Rapids, Iowa	3'-4"	4'-6"	36"	24"
	3'-8"	4'-6"	40"	24"
	4'-0"	4'-6"	44"	24"
	2'-4"	5'-2"	24"	28"
	2'-8"	5'-2"	28"	28"
	3'-0"	5'-2"	32"	28"
	3'-4"	5'-2"	36"	28"
	3'-8"	5'-2"	40"	28"
	4'-0"	5'-2"	44"	28"
Binswanger Co., Inc. Richmond 21, Va.	2'-0"	4'-2"	20"	10 5/8"
Chicago & Riverdale Lumber Co. Chicago, Ill.	2'-4"	4'-2"	24"	10 5/8"
Dekker-Brish Millwork Co. 148th & Indiana Dolton, Illinois	2'-4"	4'-6"	24"	11 5/8"
Woodco, Inc. North Bergen, N. J.	2'-8"	4'-6"	28"	11 5/8"
Ed. Hines Lumber Co. Chicago 8, Ill.	3'-0"	4'-6"	32"	11 5/8"
Olson Millwork Company Cedar Rapids, Iowa	3'-4"	4'-6"	36"	11 5/8"
	3'-8"	4'-6"	40"	11 5/8"
	4'-0"	4'-6"	44"	11 5/8"
	2'-4"	5'-2"	24"	13 5/8"
	2'-8"	5'-2"	28"	13 5/8"
	3'-0"	5'-2"	32"	13 5/8"
	3'-4"	5'-2"	36"	13 5/8"
	3'-8"	5'-2"	40"	13 5/8"
	4'-0"	5'-2"	44"	13 5/8"
Builders Products, Inc. Cleveland, Ohio	Goshen Sash & Door Co. Goshen, Ind.			
Blount Lumber Co. Lacona, N. Y.	Lubbock Sash & Door Co. Lubbock, Texas			
Chicago & Riverdale Lumber Co. Chicago, Ill.	Ohio Plate Glass Co. Toledo 4, Ohio			
Curtis Companies, Inc. Clinton, Iowa	Pease Woodwork Co. Cincinnati 23, Ohio			
Curtis Companies, Inc. Lincoln, Nebr.	Lumber Dealers, Inc. Denver 17, Colo.			
Curtis Companies, Inc. Topeka, Kansas	Randall Bros. Atlanta, Ga.	45 3/4"	25 3/4"	45 1/2" x 25 1/2"
Curtis Companies, Inc. Chicago, Ill.	Royal Glass Works Long Island City, N. Y.	36 1/4"	24 1/4"	36" x 24"
Curtis Companies, Inc. Wausau, Wis.	Rust Sash & Door Co. Kansas City, Mo.			
Curtis Companies, Inc. Minneapolis, Minn.	Universal Window Co. Atlanta, Ga.			
Dyke Bros. Little Rock, Ark.	Universal Window Co. Charlotte, N. C.			
Fabrow Mfg. Co. Toledo 9, Ohio	Wadsworth Millwork Co. Wadsworth, Ohio			
Fred Reuten, Inc. Closter, N. J.	Wisconsin Window Unit Co. Merrill, Wis.			
	Work-Millwork Monterey, Calif.			
WOOD All manufacturers of the wood panel window system manufacture wood ventilators.				
ALUMINUM				
A B C Steel Equipment Co. New York 10, N. Y.	Superior Window Company Miami, Fla.	45 3/4"	25 3/4"	42 1/2" x 22 1/2"
Duralite Window Corp. Knoxville, Tenn.	Ware Laboratories, Inc. Miami, Fla.	33 1/4"	21 1/4"	33" x 21"
Marmet Corp. Wausau, Wis.				

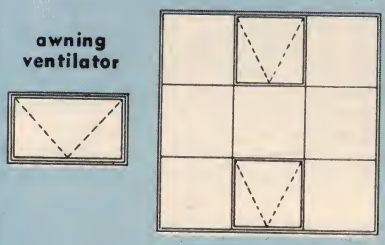
SEE THERMOPANE SPECIFICATIONS ON PAGE 26

FLAT GLASS

L-O-F GLASS

panel wall (9-light)

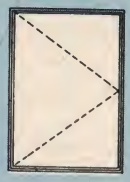
awning ventilator



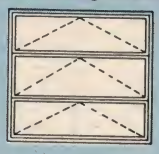
wood casements



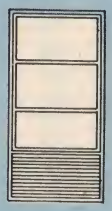
residential steel casements (without muntins)



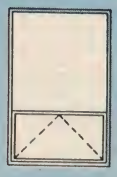
wood awning windows



panel window with louvres



modified panel window (wood)



Sash Manufacturer		Sash Opening Width Height	Glass Size Width Height
STEEL Fenestra, Inc.* Detroit, Mich. ALUMINUM Duralite Window Corp. Knoxville, Tenn. Marmet Corp. Wausau, Wis. *Fenestra, Inc. manufactures a non-standard size ventilating unit	Truscon Steel Co. Youngstown, Ohio Superior Window Company Miami, Fla. Ware Laboratories, Inc. Miami, Fla.		36″ x 24″ 34 1/16″ x 22 1/16″
Dealers Window Corp. Toledo, Ohio Rolscreen Co. Pella, Iowa		23″ x 40″ 23″ x 52″ 23″ x 64″ 27″ x 28″ 24″ x 36″ 27″ x 36″ 27″ x 40″ 27″ x 52″	20″ x 36″ 20″ x 48″ 20″ x 60″ 24″ x 24″ 21″ x 33″ 24″ x 32″ 24″ x 36″ 24″ x 48″
Bliss Steel Products Co. E. Syracuse, N. Y. Druwhit Metal Products Co. Los Angeles 11, Cal. Michael Flynn Mfg. Co. Philadelphia 24, Pa.	Hopes' Windows, Inc. Jamestown, N. Y. Soule Steel Co. San Francisco 24, Cal. Truscon Steel Co. Youngstown, Ohio	For detailed information about omitting muntins contact any L-O-F district office.	T-1 15 5/16″ x 35 3/16″ T-2 15 7/8″ x 36 1/16″ T-3 15 5/16″ x 47 1/2″ T-4 15 5/16″ x 48 3/4″ T-5 17 3/16″ x 36 1/16″ T-6 17 3/16″ x 48 3/4″
Curtis Companies, Inc. Clinton, Iowa Gate City Sash & Door Co. Ft. Lauderdale. Fla. Woodco, Inc. North Bergen, N. J.	Ludman Corporation Miami, Fla. Metz Mfg. Co. Dubuque, Iowa R-M Millwork Company Muscatine, Iowa		20″ x 16″ 32″ x 16″ 44″ x 16″ 28″ x 18″ 36″ x 18″ 44″ x 18″
Wisconsin Window Unit Co. Merrill, Wis.		49 3/8″ x 104″	45 1/2″ x 25 1/2″
Dealers Window Corp. Toledo, Ohio Fabrow Mfg. Co. Toledo 9, Ohio Fred Reuten, Inc. Closter, N. J. Wadsworth Millwork Co. Wadsworth, Ohio			45 3/8″ x 52″ ★★Manufactured only with 2 lights of 1/4″ Plate and 1/2″ Air Space; or 2 lights of 3/16″ Sheet and 1/2″ Air Space.

farm service buildings









These 7/8″-thick Thermopane units for farm buildings are made with 3/16″ sheet glass only and 1/2″ air space only. They are stenciled for use in farm buildings.	L-O-F Thermopane		1/2″ Air Space and 3/16″ Sheet Glass only 36″ x 44″ 36″ x 60″ 44″ x 72″
These 1/2″-thick units for farm buildings are made with double strength A-quality window glass only and 1/4″ air space.		Studs 24″ on center for fixed windows with stops nailed to studs.	Five Sizes Below 1/4″ Air Space and DSA Glass only 22″ x 28″ 22″ x 36″
Steel sash manufactured by Clay Equipment Corp., Cedar Falls, Iowa. Thermopane units 1/2″-thick made only with double strength A-quality window glass only and 1/4″ air space.		32″ x 36″ 32″ x 36″	31 1/2″ x 35 1/2″ 30 1/4″ x 22″ [Top] Tilting 31 1/2″ x 11 3/8″ [Bottom] Fixed

L O F GLASS

Thermopane
INSULATING GLASS

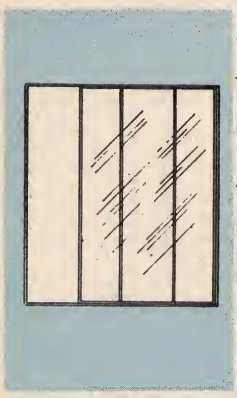
dimensional data

*For building exteriors, all *Thermopane* units with either dimension 50" or less can be manufactured with either ¼" or ½" air space. If both dimensions exceed 50" the units will be manufactured with ½" air spaces only. NOTE carefully max. size limitations because the total sq. ins. govern the max. widths and heights i.e., when a double Thermopane unit is manufactured of Polished Plate ¼" and ½" air space and the size is 68" in one dimension, then the other dimension cannot be over 144" to be within the 10,000 sq. in. max. This would hold true on units 82" x 120" or 100" x 100". A unit 100" x 144" could not be furnished as it totals 14,400 sq. in. Thermopane likely to be subjected to pressures encountered at elevations in excess of 4000 ft. should have a ¼" air space if the shorter dimension is between 8" and 16".

type of glass	min. size ¼" or ½" air space	maximum size with ¼" air space	maximum size with ½" air space	thickness range ¼" air space	thickness range ½" air space	dimensional tolerance	approx. net. wt. per sq. ft.
D.S.A. (window glass) ⅛" Polished Plate ⅛" Heat Absorbing Plate	8" x 8"	short dim. 8" to 48" max. long dim. 76" within a maximum total area of 2300 square inches *see footnote	short dim. 8" to 48" max. long dim. 76" within a maximum total area of 2300 square inches *see footnote	17/32" ±1/32"	27/32" ±1/32"	8" to 36" high to 48" wide inc. ±1/16" over 48" to 76" wide +1/8" −1/16"	3¼ lbs.
3/16" A Sheet (window glass)	8" x 8"	short dim. 8" to 50" max. long dim. 78"	short dim. 8" to 50" max. long dim. 78"	23/32" ±1/32"	31/32" ±1/32"		5 lbs.
¼" Polished Plate (regular)	8" x 8"	short dim. 8" to 16" inc. max. long dim. 100" short dim. over 16" to 50" inc. max. long dim. 144"	short dim. 8" to 16" inc. max. long dim. 100" short dim. over 16" to 100" max. long dim. 144" within a maximum total area of 10,000 square inches *see footnote	27/32" ±1/32"	1 3/32" ±1/32"	8" to 36" high to 48" wide incl. +1/8" −1/16"	6½ lbs.
¼" Heat Absorbing Plate ¼" Parallel-O-Grey Plate	8" x 8"	short dim. 8" to 16" inc. max. long dim. 100" short dim. over 16" to 48" inc. max. long dim. 120"	short dim. 8" to 16" inc. max. long dim. 100" short dim. over 16" to 84" max. long dim. 120" within a maximum total area of 7200 square inches *see footnote	27/32" ±1/32"	1 3/32" ±1/32"	over 36" to 100" high over 48" to 132" wide +3/16" −1/16"	6½ lbs.
¼" Tuf-flex Polished Plate ¼" Tuf-flex Heat Absorbing ¼" Tuf-flex Parallel-O-Grey	8" x 8"	40" x 48"	40" x 48"	27/32" ±1/32"	1 3/32" ±1/32"		6½ lbs.

sliding door—standard sizes

aluminum



Adams Engineering Co., Inc.
19300 Biscayne Blvd.
Miami, Florida

Ador Sales, Inc.
2345 Commonwealth Ave.
Fullerton, Calif.

The Alumiline Corp.
Donnell Lane
Pawtucket, R. I.

V. E. Anderson Mfg. Company, Inc.
Owensboro, Kentucky

Arcadia Metal Products
801 South Acacia Ave.
Fullerton, Calif.

Bailey-Kelleher Company
500 Bellevue Ave.
Detroit 7, Michigan

Binswanger Gulfspray Sliding Door Co.
207 North Main St.
Houston 1, Texas

Bur-Val Mfg. & Metal Supply Co.
Burbank, Calif.

Capitol Products
Mechanicsburg, Penna.

Daryl Products
7240 N. E. 4th Ave.
Miami, Florida

Fenestra, Inc.
2250 East Grand Blvd.
Detroit 11, Michigan

Fleet of America, Inc.
515 New Walden Ave.
Buffalo 25, N. Y.

General Bronze Corp.
Alwintite Division
Garden City, N. Y.

Glamour Sliding Door Corp.
4723 N. Pulaski Road
Chicago 30, Illinois

Glide Windows, Inc.
7463 Varna Avenue
N. Hollywood, Calif.

Hi-View Products, Inc.
3150 E. 11th Ave.
Hialeah, Fla.

Hollyview Sliding Door & Window Co.
13060 Saticoy Street
N. Hollywood, Calif.

Lynart, Inc.
2320 Centinela Avenue
W. Los Angeles, Calif.

Malibu Manufacturing Co.
P. O. Box 413
El Monte, Calif.

Mayfair Industries, Inc.
Lafayette, Louisiana

Frank B. Miller Mtg. Co., Inc.
3216 Valhalla Drive
Burbank, Calif.

The Modern Shower Door Co.
1804 E. 40th St.
Cleveland, Ohio

Nudor Mfg. Corporation
7326 Fulton Avenue
N. Hollywood, Calif.

Oro Manufacturing Co.
1425 E. Michigan Street
Adrian, Michigan

Pacific Fullview Co.
4640 Sperry St.
Los Angeles, Calif.

Shower Door Co. of America
1 Permalume Place
Atlanta, Ga.

Slide-View Door & Window Co.
P. O. Box 409
El Monte, Calif.

Sun Valley Sliding Door Co.
8354 San Fernando Road
Sun Valley, Calif.

Trimview Metal Products
600 North 3rd Street
Covina, Calif.

Viewall, Inc.
7601 Arvilla Ave.
Burbank, Calif.

T. V. Walker & Son, Inc.
P. O. Box 547
217 North Lake
Burbank, Calif.

steel

Arcadia Metal Products
801 South Acacia Ave.
Fullerton, Calif.

Malibu Mfg. Co.
P. O. Box 413
El Monte, Calif.

Michel & Pfeffer Iron Works, Inc.
212 Shaw Road
So. San Francisco, Calif.

Frank B. Miller Mfg. Co., Inc.
3216 Valhalla Drive
Burbank, Calif.

Slide-View Door & Window Co.
P. O. Box 409
El Monte, Calif.

Steelbilt, Inc.
18001 South Figueroa
Gardenia, Calif.

¼" polished plate with ½" air space—1" thick

33" x 76¾" 45" x 76¾" 57" x 76¾"

3/16" A sheet with ¼" air space—⅝" thick

33" x 76¾" 34" x 76" 45" x 76¾" 46" x 76"

SEE THERMOPANE SPECIFICATIONS ON PAGE 26

standard sizes

Bondermetic

2 panes of 1/4" polished plate 1/2" air space

Width		Height
33"	x	76¾"
35½"	x	36"
35½"	x	48⅛"
35½"	x	60⅜"
44½"	x	36"
55¼"	x	36"
68¾"	x	36"
75"	x	36"
93"	x	36"
42"	x	66"
42"	x	72"
44½"	x	48⅛"
44½"	x	60⅜"
45"	x	76¾"
45⅜"	x	52"
48½"	x	46"
64½"	x	46"
72½"	x	46"
46⅛"	x	52½"
56½"	x	46⅛"
47¾"	x	50⅜"
66⅝"	x	47¾"
48"	x	48"
48"	x	60"
72"	x	48"
55¼"	x	48⅛"
68¾"	x	48⅛"
75"	x	48⅛"
93"	x	48⅛"
48½"	x	50"
48½"	x	58"
56½"	x	50"
64½"	x	50"
72½"	x	50"
80½"	x	50"
96½"	x	50"
50⅜"	x	60⅛"
58⅛"	x	52½"
70⅛"	x	52½"
55¼"	x	60⅜"
56½"	x	58⅛"
56½"	x	66"
70⅛"	x	56½"
57"	x	76¾"
64½"	x	58"
72½"	x	58"
80½"	x	58"
96½"	x	58"
116½"	x	58"
72"	x	60"
66⅝"	x	60⅛"
68¾"	x	60⅜"
75"	x	60⅜"
93"	x	60⅜"
64½"	x	66"
72½"	x	66"
84"	x	66"
96"	x	66"
84"	x	72"
96"	x	72"

2 panes of 1/8" polished plate or DSA window glass 1/4" air space

Width		Height
15 15/16"	x	35 3/16"
15⅞"	x	36 7/16"
15 15/16"	x	47½"
15 15/16"	x	48¾"
17 3/16"	x	36 7/16"
17 3/16"	x	48¾"
20"	x	10⅜"
20"	x	16"
20"	x	22"
20"	x	36"
20"	x	48"
20"	x	60"
24"	x	10⅜"
24"	x	11⅝"
24"	x	13⅜"
24"	x	22"
24"	x	24"
*24"	x	28"
*24"	x	32"
*24"	x	36"
24"	x	48"
28"	x	11⅝"
28"	x	13⅜"
28"	x	18"
*28"	x	24"
28"	x	28"
32"	x	11⅝"
32"	x	13⅜"
32"	x	16"
*32"	x	24"
32"	x	28"
33"	x	21"
34 11/16"	x	22 11/16"
36"	x	11⅝"
36"	x	13⅜"
36"	x	18"
*36"	x	24"
36"	x	28"
40"	x	11⅝"
40"	x	13⅜"
40"	x	24"
40"	x	28"
42½"	x	22½"
44"	x	11⅝"
44"	x	13⅜"
44"	x	16"
44"	x	18"
44"	x	24"
44"	x	28"
45½"	x	25½"

*Considered Standard Size even though width and height dimensions, as listed are reversed.

GlasSeal

DSA sheet glass with 3/16" air space (thickness .450"±.050")

Width		Height
16"	x	24"
16"	x	32"
16"	x	36"
16"	x	48"
16"	x	60"
16 9/16"	x	24⅝"
16 9/16"	x	30 13/16"
16 9/16"	x	36 13/16"
16 9/16"	x	49"
16 9/16"	x	61¾"
19"	x	15"
20"	x	24"
20"	x	32"
20"	x	36"
20"	x	48"
20"	x	60"
21 1/16"	x	24⅝"
21 1/16"	x	30 13/16"
21 1/16"	x	36 13/16"
21 1/16"	x	49"
21 1/16"	x	61¾"
22"	x	18"
22"	x	55 9/16"
24"	x	24"
24"	x	32"
24"	x	36"
24"	x	48"
24"	x	60"
24¼"	x	15¼"
27¼"	x	14¼"
27¼"	x	18¼"
27¼"	x	22¼"
27¼"	x	30¼"
28"	x	14"
28"	x	18"
28"	x	22"
32"	x	16"
34 11/16"	x	22 11/16"
36"	x	14"
36"	x	18"
36"	x	22"
36"	x	24"
36"	x	30"
36⅝"	x	14¼"
36⅝"	x	18¼"
36⅝"	x	22¼"
36⅝"	x	30¼"
39"	x	14"
39"	x	18"
39"	x	22"
39"	x	30"
39⅝"	x	14¼"
39⅝"	x	18¼"
39⅝"	x	22¼"
39⅝"	x	30¼"
42½"	x	22½"
44"	x	14"
44"	x	18"
44"	x	22"
44"	x	30"
44⅝"	x	14¼"
44⅝"	x	18¼"
44⅝"	x	22¼"
44⅝"	x	30¼"
45½"	x	25½"

SSA sheet glass with 3/16" air space (thickness .375"±.050")

Width		Height
20"	x	14"
20"	x	16"
20"	x	20"
24"	x	14"
24"	x	16"
24"	x	20"
24"	x	24"
24"	x	28"
28"	x	14"
28"	x	16"
28"	x	20"
28"	x	24"
28"	x	28"
32"	x	14"
32"	x	16"
32"	x	20"
32"	x	24"
32"	x	28"
36"	x	14"
36"	x	16"
36"	x	20"
36"	x	24"
36"	x	28"
40"	x	14"
40"	x	16"
40"	x	20"
40"	x	24"
40"	x	28"

For information regarding special sizes, see page 12.

The Thermopane monogram will be in the lower right-hand corner and should be glazed in this position whenever possible. Thermopane made with window glass should not be turned when set. Specify width first.

SUGGESTED SPECIFICATIONS—LIBBEY • OWENS • FORD PRODUCTS

POLISHED PLATE GLASS

Plate glass shall be Libbey-Owens-Ford *Parallel-O-Plate* Glass and shall be (_____) thick and (_____) quality as defined by Federal Specification DD-G-451a.

HEAVY POLISHED PLATE GLASS

Heavy polished plate glass (in thicknesses from 3/8" through 3/4") shall be twin ground (_____) thick. One inch thickness shall be conventionally ground. Quality of heavy plate shall be as defined in Federal Specification DD-G-451a.

1/4" PARALLEL-O-GREY POLISHED PLATE GLASS

Where neutral grey polished plate glass is shown on the drawings, it shall be Libbey-Owens-Ford 1/4" glazing quality Parallel-O-Grey and shall meet the heat absorbing requirements of Federal Specification DD-G-451a.

HEAT ABSORBING POLISHED PLATE GLASS

Where heat absorbing plate glass is shown on the drawings, it shall be Libbey-Owens-Ford Heat Absorbing Polished Plate Glass, 1/4" thick glazing quality as defined by Federal Specification DD-G-451a.

21/64" ROUGH PLATE BLANKS (OBSCURE GLASS)

Where Rough Plate Blanks are shown on the drawings they shall be Libbey-Owens-Ford 21/64" (regular or heat absorbing) Rough Plate Blanks.

WINDOW GLASS—SHEET GLASS

All window or sheet glass shall be Libbey-Owens-Ford Flat Drawn (_____) thick and (_____) quality as defined by Federal Specification DD-G-451a. Each light shall bear the identifying L-O-F label.

MIRRORS

Mirrors shall be made of Libbey-Owens-Ford 1/4" *Parallel-O-Plate* Glass and shall be of (_____) quality as defined by Federal Specification DD-G-451a, in sizes as shown on drawings.

MIRROPANE TRANSPARENT MIRRORS

Transparent mirrors shall be *Mirropane*, made of Libbey-Owens-Ford (1/8" or 1/4") thick Polished Plate Glass as defined by Federal Specification DD-G-451a. It is also available in 1/4" Parallel-O-Grey polished plate glass. Sizes shall be shown on drawings and installation shall be according to manufacturer's recommendations.

TUF-FLEX TEMPERED PLATE GLASS

Where tempered glass is shown on the drawings, it shall be Libbey-Owens-Ford *Tuf-flex* Polished Plate Glass (_____) thick and (_____) type of glass in sizes as shown on drawings. The quality of this glass shall meet the requirements of Federal Specification DD-G-451a.

TUF-FLEX TEMPERED PLATE GLASS DOORS

All glass doors shall be Tempered Plate Glass (1/2" or 3/4" thick) in sizes as shown on the drawings, equipped with fittings of (solid bronze, aluminum or stainless steel) and with (polished bronze, brushed bronze, polished chrome, brushed chrome, alumilited aluminum or gold anodized) finish as manufactured by Libbey-Owens-Ford Glass Company and installed according to manufacturer's instructions. The quality of this glass shall meet the requirements of Federal Specification DD-G-451a.

THERMOPANE INSULATING GLASS

Bondermetic (metal-to-glass) Seal

All insulating glass shall be double *Thermopane* in sizes indicated on the drawings and composed of an inner pane of (_____) glass (_____) thick and an outer pane of (_____) glass (_____) thick, hermetically sealed with a metal-to-glass bond* and separated by a (1/4" or 1/2") dehydrated air space as manufactured by Libbey-Owens-Ford Glass Company and installed according to manufacturer's instructions. The quality of this glass shall meet the requirements of Federal Specification DD-G-451a.

*Also furnished in GlasSeal Thermopane with 3/16" air space.

GlasSeal

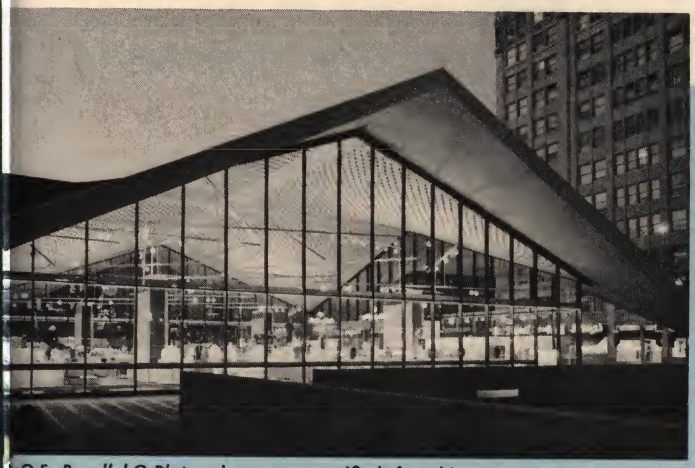
All insulating glass herein shall be GlasSeal Thermopane composed of the two lights Double (Single) Strength A quality sheet glass separated by a 3/16" air space.

VITROLUX SPANDREL GLASS

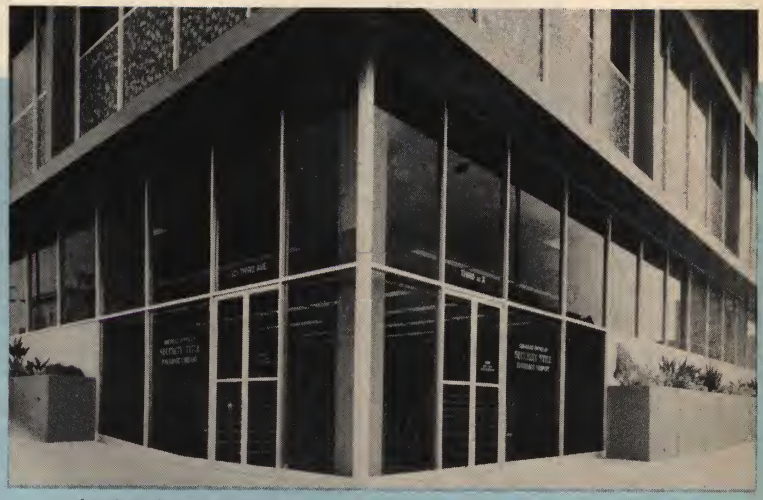
All opaque plate glass specified herein or indicated on plans for use as spandrels or curtain walls shall be *Vitrolux* as manufactured by Libbey-Owens-Ford Glass Company, and shall consist of 1/4" heat-strengthened plate glass with vitrous color fire-fused on the back surface.

Below are a few dramatic examples of L-O-F products in use. Architects and designers are encouraged to call attention to exceptional installations of L-O-F glass.

FLAT GLASS



L-O-F *Parallel-O-Plate* glass was specified for this attractive May-D&F Department Store in Denver. Architect: I. M. Pei & Associates, New York City.



The first floor of this insurance building front was glazed with L.O.F Parallel-O-Grey Polished Plate Glass to help cut air conditioning costs and to reduce glare. Architect: Lane, Hart & Schlick, Van Nuys, Calif.



This library and classroom building at Western Michigan University, Kalamazoo, is glazed with *Thermopane*, L-O-F *Parallel-O-Plate* and Heat Absorbing Plate glass. Architect: Ralph Calder, Detroit.



Glass-walled entrance foyer in Whittier (Calif.) City Hall is glazed with L-O-F Heat Absorbing Plate Glass to reduce sun glare and heat. Architect: William H. Harrison, Los Angeles.



St. Stephen's Episcopal Church, Columbus, Ohio. Architects: Brooks and Coddington, Columbus. The facade is glazed with L-O-F Plate Glass with *Thermopane* insulating glass in side windows overlooking a landscaped terrace.

L-O-F *Vitrolux* Spandrel Glass in Smith College Girls' Dormitory, Northampton, Mass. Architect: Skidmore, Owings & Merrill, New York.



AIA—File No. 26-A-1960

LIBBEY · OWENS · FORD

a Great Name in Glass

Is a Member of Producers' Council, Inc.

services

The Libbey-Owens-Ford Glass Company is one of the world's largest manufacturers of flat glass. Main offices are in Toledo, Ohio, with sales offices in principal cities. Factories are Rossford, Ohio; East Toledo, Ohio; Ottawa, Ill.; Shreveport, La.; Charleston, W. Va. and Brackenridge, Pa.

In Toledo, the company maintains three excellent facilities—research department, technical laboratory and design department—to assist the architect, designer, engineer and builder with any glass problem.

All L-O-F products for building purposes are sold and installed by leading glass distributors and dealers. For additional information, contact any L-O-F office or distributor.

LIBBEY · OWENS · FORD GLASS COMPANY

TOLEDO 3, OHIO

district offices

Atlanta 3, Ga. — Jackson 4-5239
602-608 Whitehead Building
223 Peachtree Street, N. E.

Boston 16, Mass. — Hubbard 2-0100
526 Statler Building
20 Providence Street, Park Square

Buffalo 3, N. Y. — Mohawk 7656
2010 Rand Building
14 Lafayette Square

Chicago 3, Ill. — Central 6-2490
Room 1400-1410
120 So. LaSalle St.

Cincinnati 2, Ohio — Main 1-6174
912 Enquirer Building
617 Vine Street

Cleveland 13, Ohio — Main 1-7180
1302 Terminal Tower Building

Dallas 1, Texas — Riverside 1-4026
1402 Tower Petroleum Building

Dayton 2, Ohio — Baldwin 4-8315
901 Third National Building

Denver 2, Colo. — Alpine 5-0395
1414 Mile High Center Building

Detroit 2, Mich. — Trinity 5-0080
610-611 Fisher Building

Indianapolis 4, Ind. — Melrose 7-1363
625 Circle Tower Building
5 East Market Street

Kansas City 6, Mo. — Victor 2-5360
910 Dwight Building
1004 Baltimore Street

Los Angeles 5, Cal. — Dunkirk 8-0641
1101 Tishman Building
3440 Wilshire Blvd.

Memphis 3, Tenn. — Jackson 7-7589
837 Sterick Building
8 North Third Street

Milwaukee 3, Wis. — Broadway 2-2887
5154 Plankinton Building
161 West Wisconsin Avenue

Minneapolis 2, Minn. — Federal 2-8429
506 WCCO Building

New York 16, N.Y. — Murray Hill 2-6511
99 Park Avenue

Philadelphia, Pa. — Greenwood 7-4120
121 Coulter Avenue, Ardmore, Pa.

Richmond 19, Va. — Milton 3-3034
1122 Mutual Assurance Society Bldg.
909 East Main Street

St. Louis 1, Mo. — Central 1-9863
Ambassador Building
411 N. 7th Street

San Francisco 5, Calif. — Sutter 1-4360
635 Rialto Building
116 New Montgomery Street

Seattle 1, Wash. — Mutual 2-7047
1301 Tower Building

Toledo 3, Ohio — Cherry 2-5781
608 Madison Ave.

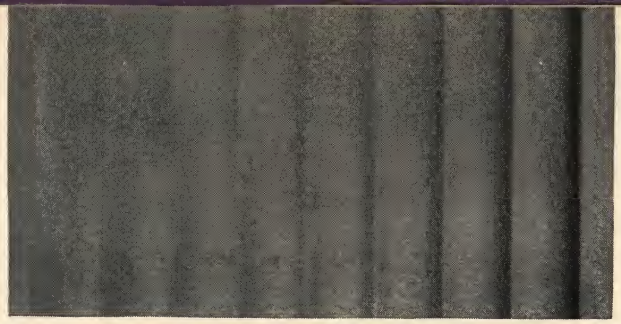
Washington 6, D. C. — Sterling 3-4472
806 Connecticut Avenue

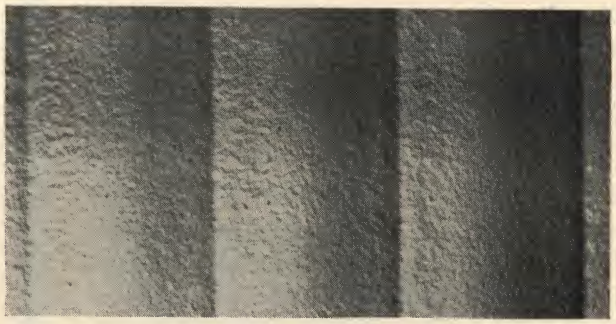
AIA—File No. 26-A-1960

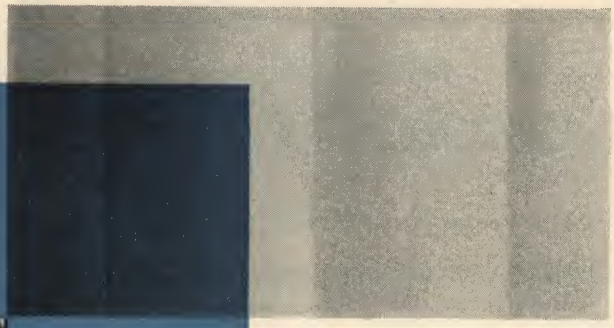
Form SA-60

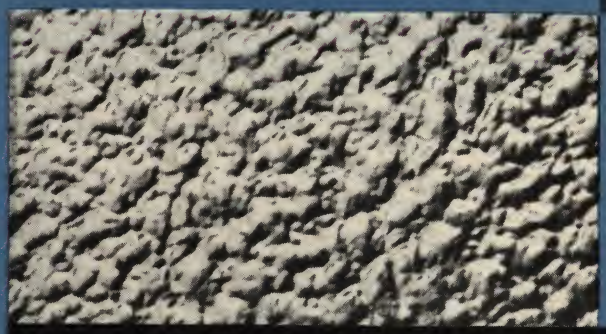
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catalog 60-G



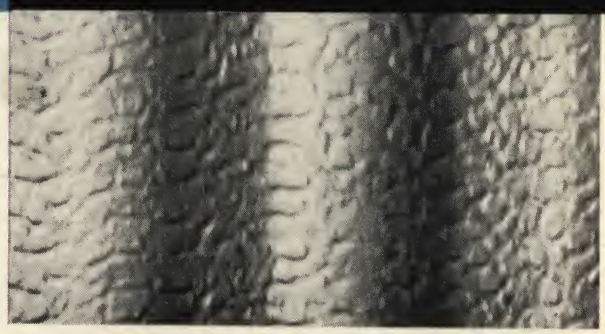






MISSISSIPPI

GLASS



for
industrial
commercial
school
residential
use

mississippi glass

advantages

time tested

The traditionally preferred material for vertical sidewall and skylight glazing, glass and glass alone, affords the proven performance needed for better daylighting at ultimately the lowest cost. Glass posseses the chemical stability, permanence of finish, color, shape, surface hardness, non-inflammability and other desirable characteristics available in no other product. Glass is the proven material that has withstood the tortuous test of time. There is no substitute for glass.

- **It is non-combustible . . . won't burn.**
- **It is rigid . . . doesn't sag, warp or bend.**
- **It has a permanently hard, impervious surface, unaffected by time, abrasion and exposure to the elements.**
- **It resists corrosion and staining.**
- **It resists chemicals, acids, solvents, etc.**
- **It retains its original clarity, brilliance and lustrous beauty.**
- **It is easily installed, maintained and cleaned by conventional methods.**

As the world's largest manufacturer of rolled, figured and wired glass, Mississippi Glass Company offers an extensive selection of conventional and modern patterns with surface finishes and light transmission characteristics that fulfill the requirements of any design or specification. Brilliancy, strength, true cutting surface and excellence of quality assure maximum possible advantage from controlled illumination characteristics and decorative effects, and combine with moderate cost to make Mississippi Glass the choice of thousands of architects, engineers, builders and decorators.

nation wide acceptance

Mississippi Glass is widely known and has been favorably regarded for 86 years. Its primary functions of diffusion, decoration and protection along with a secondary function of heat absorption, result in a variety of types each designed and engineered to accomplish a specific purpose. Its service in industrial, residential, commercial buildings and in schools has become so well established as to be taken for granted.

important functions

LIGHT DIFFUSION AND GLARE REDUCTION

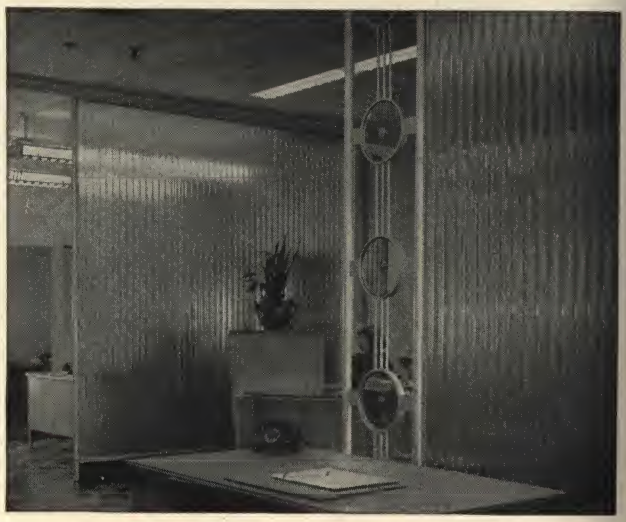
The properties of light diffusion and glare reduction are two of the most useful tools available to an architect, engineer or designer. By these means, rooms can be adequately daylighted far from windows, small skylight areas can cover large floor areas with shadowless daylight, privacy can be secured, light can be controlled.



Light becomes a vibrant, interesting part of the decorating scheme, transforming a utilitarian stair landing into a point of high interest. Burton Schutt, Architect. Reprint from Sunset Magazine.

DECORATION

Translucent figured glass by Mississippi affords the architect countless opportunities for creating new and striking effects . . . helps to achieve a feeling of warmth and unity that is as utilitarian as it is beautiful.



Daylighting partitions of Structural Corrugated Glass in modern office.

PROTECTION

Wire glass, approved for many years by the National Board of Fire Underwriters as a fire retardant has saved countless millions of dollars of property from conflagration. The advent of diamond shaped, welded Misco netting in wire glass, created by Mississippi, has removed the objection held by many to the "chicken wire" effect of the netting used in wire glass for so many years.



HEAT ABSORPTION

Admitting maximum natural daylight while intercepting solar heat to keep interiors more comfortable is the task successfully performed by Mississippi Coolite Heat Absorbing Glass. The composition and color of this glass change the character of the light... provide an even spread of adequate illumination from which much of the sun's heat has been removed.



types

standard

Mississippi Glass is available in a wide variety of patterns and surface finishes combining interesting texture with modern practicality. All transmit valuable light, yet their obscurity assures varying degrees of privacy based on pattern characteristics and finish selected.

heat absorbing

In the simplest terms, the interception of solar heat by Coolite is the result of several factors. Tests on ¼" Polished Coolite prove that approximately 80% of the solar heat is intercepted by being reflected and absorbed, and that only 20% passes through the glass without interference. The energy that is absorbed raises the temperature of the glass which then theoretically re-radiates heat equally from both the inner and outer surfaces. Actually, however, more than half of this heat is dissipated outside the building because of greater air circulation.

finishes

For maximum glare reduction and striking decorative effects, many patterns may be given varying degrees of obscurity by sand blasting or glare reducing. Sand blasting may be applied to either one or both surfaces, while the glare reducing finish may be applied to either the pattern side or both surfaces of the glass. Our Glare Reducing and Sand Blasting are applied to full face only. Polished finish for clear vision is applied only to Polished Misco and Polished Wire Glass.

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mississippi glass for schools

advantages

Mississippi Glass Co., through its extensive research activities, has found better ways to remove the harmful qualities of "raw" sunlight that lighting engineers have found to be distracting and harmful in the schoolroom. Uniform, natural, glare-free illumination, made possible with translucent, light diffusing glass by Mississippi, not only assists in preventing dangerous eye fatigue, but it also helps maintain class interest and aids concentration. Classrooms appear more spacious and cheerful when flooded with undistorted, softened, natural daylight.

Additional advantages available with Mississippi Glass include the absorption of 50% of the sun's heat when heat absorbing and glare reducing glass is employed and the full protection afforded by wire glass (Approved Fire Retardant No. 32) when glazed in recommended openings. Adequate ventilation is provided since any Mississippi Glass pattern can be easily installed in conventional sash at no additional cost.

Translucent light diffusing glass by Mississippi is available in many patterns and surface finishes that satisfy every requirement. All have been scientifically designed to distribute daylight to utmost advantage. In its experimental school building, located on factory grounds, various Mississippi patterns are subjected to actual classroom conditions in continuing daylighting research. After the large sash sizes that are today so widely favored in modern school architecture have been determined, it is recommended that you consult the local Mississippi Glass supplier for estimates in these sizes. You will be pleased to learn that the pattern of your choice will compare favorably in cost with ordinary glazing. And remember, only Mississippi Glass offers you these advantages in school daylighting:

GLARE REDUCTION
HEAT ABSORPTION
DIFFUSION
LIGHT DIRECTION
MAXIMUM LIGHT
PROTECTION
MINIMUM COST

In new schools or in remodeling projects, take advantage of Mississippi's wide experience. Its technicians are ready to help you with every glazing problem. Specify glass by Mississippi and make better school daylighting a part of your plan. As a result of extensive studies in the important field of schoolroom daylighting, the following Mississippi patterns are particularly recommended:

recommended types



Jalousies of Coolite Heat Absorbing, Glare Reducing glass are a new idea in complete classroom comfort. Architect: Curtis & Davis, New Orleans, Louisiana.

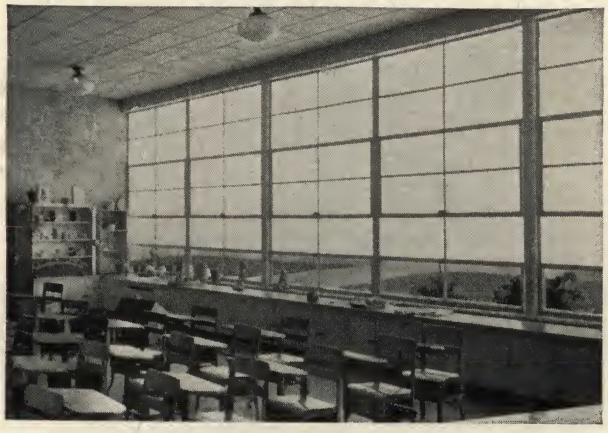
COOLITE
for heat absorption and glare reduction

Coolite heat absorbing and glare reducing glass is of a cool blue color with a slightly greenish cast. Filtering out the unwanted factors in "raw" sunlight, Coolite floods classrooms with softened, delicately tinted natural illumination. Coolite keeps classrooms cooler, more comfortable, for it absorbs nearly 50% of the solar heat. Coolite conditioned light helps protect precious young eyes from fatigue. Students see better, feel better, tend to learn more readily in classrooms glazed with Coolite. For details see pages 7, 18 and 19.



PENTECOR
for maximum light distribution

Pentecor, a handsome ribbed pattern by Mississippi has proved to be a glass widely favored by school architects. Transmitting softened, diffused light deep into interiors, Pentecor makes seeing tasks easier by providing the maximum in light distribution . . . floods entire classrooms with plenty of undistorted, softened, natural light. For details see pages 7 and 9.



HYLITE
for maximum light transmission

With its attractive surface finish Hylite affords maximum light plus diffusion. It is particularly recommended for use in localities which are subject to a high percentage of overcast days or in exposures on which direct sunlight seldom, if ever falls. This all adds up to happier, more attentive pupils and the effect created is conducive to concentration and school interest. See page 7, 8.



POLISHED MISCO WIRE GLASS
for maximum beauty with protection

Polished Misco Wire Glass with its attractive and almost inconspicuous diamond netting is a truly modern glass that combines the utmost in protection with modern beauty. It is therefore ideally suited for school use. The innate strength of this famous wire glass adds structural endurance, reduces danger from breakage. Polished Misco helps retard the effects of dangerous fires... tends to bottle up and control fires before they can spread to tragic proportions. Blending harmoniously with modern school construction, Polished Misco is unexcelled in windows, doors, skylights and partitions. See pages 7, 16 and 17.

transmission data

1/8" Pentecor—For Redirecting Daylight

Direct light transmission 88.5%
Diffuse light transmission 69.5%

Highest illumination of the back of the room may be obtained by the use of 1/8" Pentecor glazed with the ribs running horizontally. This high level of redirected daylight can be obtained without sacrificing a reasonably high illumination at the back of the room during overcast days.

NOTE: For greater diffusion, softening of shadows, and reduction of lighting contrasts within the room 1/8" Pentecor Glare Reducing is recommended.

1/8" Pentecor Glare Reducing
For Softened Daylight

Direct light transmission 68.0%
Diffuse light transmission 60.5%

1/8" Coolite Glare Reducing
For Maximum Comfort and Conditioned Light

Direct light transmission 45%
Diffuse light transmission 28.5%

Maximum protection from excessive solar heat gain and excessive sunlight on Eastern, Western, and Southern exposures may be obtained by the use of Coolite Glare Reducing glass. Not only is window panel brightness reduced, by means of diffusion and light transmission control, to a point of comfort in all but the most extreme circumstances, but also solar heat gain is reduced by one-half. This glass is recommended where excessive sunlight is the prevailing condition.

1/8" Hylite—For Maximum Light

Direct light transmission 90.5%
Diffuse light transmission 84.0%

Maximum light transmission, for schools in localities which are subject to a very high percentage of overcast days, or for exposures on which the sun never falls, may be obtained through the use of 1/8" Hylite glass.

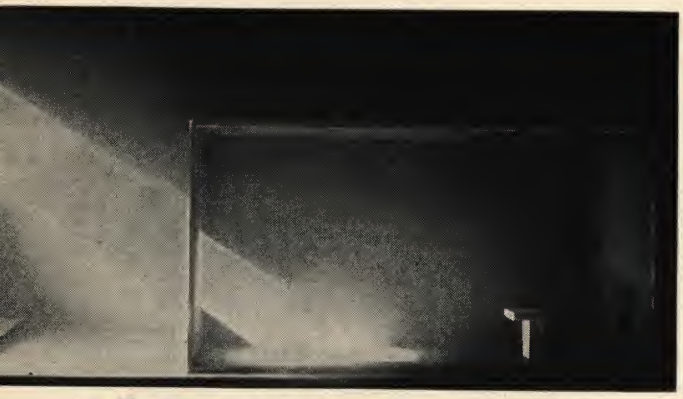
Window panel brightness may reach undesirable extremes when the sun is within the angle of view, and will vary as the sun falls within or leaves the angle of view. No static translucent medium, having a light transmission sufficient to admit a practical amount of usable daylight, can serve as protection against the multi-million foot lamberts of brightness in the sun without some supplementary brightness control. Protection against the brightness of the sun on one hand, and transmission of maximum daylight for overcast conditions on the other, constitutes too wide a range to be covered by a fixed, non-elastic medium. Glare within the room can be eliminated by the use of light diffusing glass, but glare of the window panel itself will require additional control. Therefore, for East, South, or West elevations, we recommend that either the seating arrangement should be such that the sun itself is excluded from the field of view (face students toward the North in all classrooms), or some means of supplementary brightness control, such as adjustable blinds, be provided.

light distribution properties

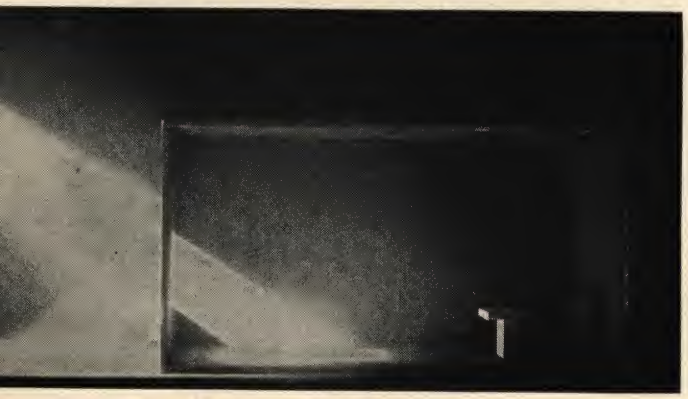
In good daylighting practice, the problem is to provide enough light at working levels distant from the window, while avoiding a high concentration of light next to the window. To accomplish this uniformity of lighting, some diffusion must be employed to throw a portion of the available light directly to the far side of the room. This, at the same time, serves to reduce the objectionable brightness near the windows. For this purpose diffusing glass by Mississippi is ideally suited. The four smoke box photographs below illustrate the light distributing property of diffusing glass. How this is applied in the lighting of an actual working area is illustrated by means of the photographs of Mississippi's Experimental Classroom, photographs 5 and 6.

In photographs 1 through 4 the box is built to the scale of 1″ equals 1′ to represent a room 12′ high, 12′ wide and 24′ deep. The "window," centered in one end, is 4′ square, 3′ above the floor.

Glare Reduction—Objectionable glare, resulting from the contrast between substantially different brightnesses within the same field of view is converted to controlled, usable, uniform illumination across the working level of the room through the use of the proper translucent glass. For information on the special glare reducing finishes applied to Mississippi Glass patterns, see pages 3, 18 and Pattern Specifications.



1. No Glass in Smoke Box



2. Clear Glass in Smoke Box



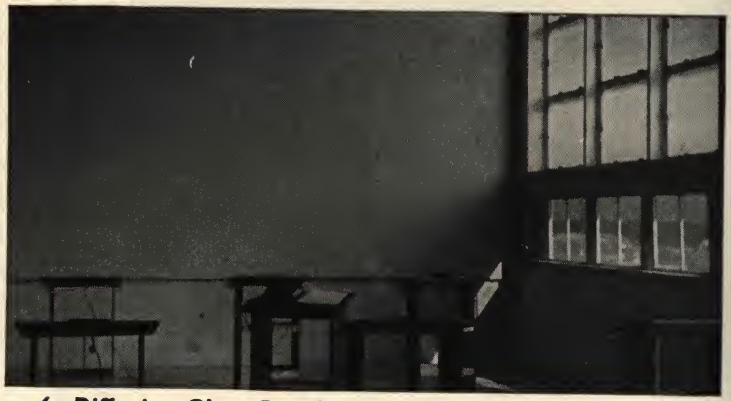
3. Directional Diffusing Glass in Smoke Box



4. Diffusing Glass in Smoke Box

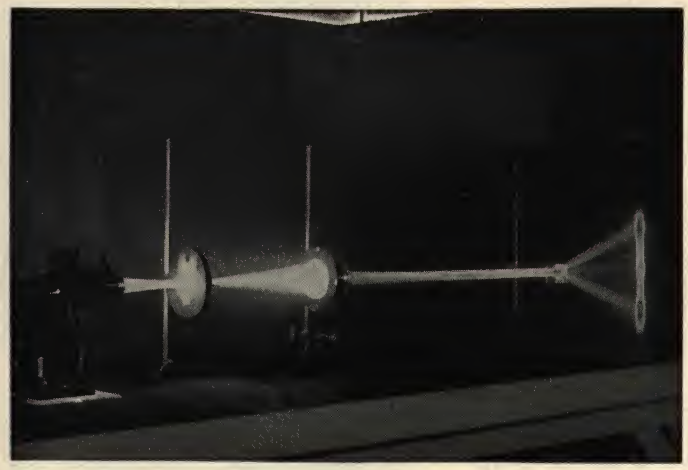


5. Clear Glass in Schoolroom



6. Diffusing Glass Panel above clear vision strip.





The tables on the following pages include the specifications and light distribution charts which will be of assistance in the selection of the proper glass for any specific requirement. The light distribution charts were developed by the apparatus shown at the left. The first photograph shows an inch square of parallel light projected on the screen. The second photograph shows the result of placing a piece of Pentecor glass in the beam of light sixteen inches in front of the screen. The spread of the light diffusion in relation to the one inch square is shown on the light distribution chart of Pentecor on page 9. Light distribution of the other types of rolled glass in relation to the one inch square is similarly shown on the following tables, all being to scale of 3/16 inch to one inch. The optical system of the apparatus employed in light distribution determination is shown below. Due to loss by reflection, the light transmission of uncoated clear glass is never in excess of 92%, not including other losses due to the absorption of light by the composition of the glass. Note obvious reflection loss in photographs 2, 3, and 4, page 6, as compared with photograph 1.

Choices Available

Interesting design characteristics contribute to the versatility of translucent, light diffusing glass by Mississippi. Figuration to meet every need is available and the degree of obscurity is governed both by pattern selection and the application of the special finishes herein described.

Accurate Diffusion Data

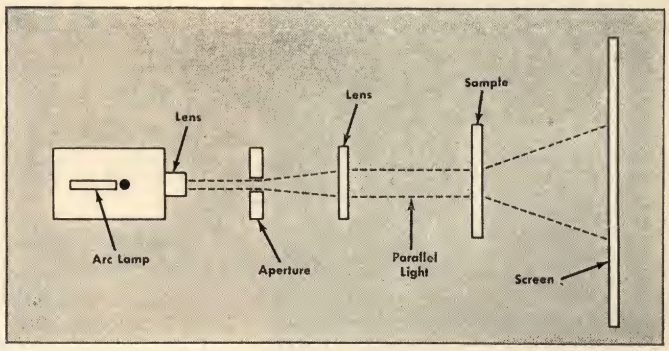
The light distribution charts, plus pattern and specification data, have been found to assist architects, engineers, contractors and others in their choice of the glass best suited to a particular installation.

Light Distribution Properties

Distributing daylight to where needed is the primary purpose of windows. To attain this with the efficiency adequate for adverse sky conditions, light must be thrown directly to working levels. When sky conditions reverse themselves to extreme brightness, the surface finishes and pattern characteristics available in Mississippi Glass effectively minimize objectionable glare.

Light Distribution Determination

In determining light distribution, the beam of light from the projection lamp passes through an aperture, after which the relatively parallel beam of light is 1″ square in cross section. The light then passes through the glass in the sample holder to the screen 16″ distant, scored in 1″ squares. By placing the different glass patterns in the sample holder, the 1″ square light beam is distributed as shown in the light distribution patterns.



types primarily for diffusion

Pattern Actual Size

Light Distribution Chart



THICK-NESS	APPROX. LIGHT TRANSM'N	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZES UNTREATED	MAXIMUM SIZES G-R 2 SIDES	MAXIMUM SIZES G-R 1 SIDE
LUXLITE					
1/8"	88.5%	2.0	48 x 132	48 x 132	48 x 132
7/32"	87.3%	2.8	60 x 136	60 x 136	60 x 136





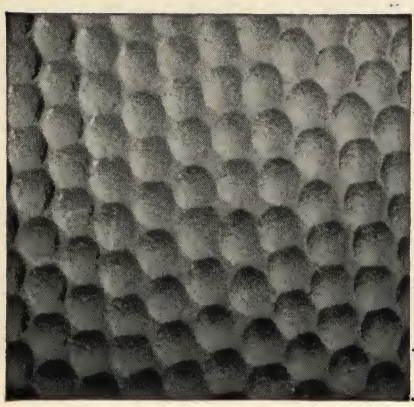
HYLITE					
1/8"	90.5%	2.0	48 x 132	48 x 132	—
7/32"	89.9%	2.8	60 x 136	60 x 136	—
1/4" Wired	89.6%	3.3	60 x 144	60 x 144	—





SMOOTH ROUGH®					
1/8"	87.8%	2.0	48 x 132	48 x 132	—
7/32"	86.3%	2.8	60 x 136	60 x 136	—
3/8"	82.5%	5.0	60 x 144	—	—
1/4" Wired	85.6%	3.3	60 x 144	—	—
	(hexagonal mesh on Pacific Coast only)				
1/4" Misco	85.6%	3.3	60 x 144	60 x 144	—





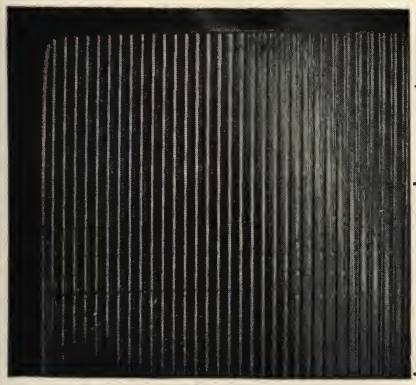
HAMMERED					
1/8"	87.5%	2.0	48 x 132	48 x 132	48 x 132
7/32"	85.9%	2.8	60 x 136	60 x 136	60 x 136
1/4" Wired	85.1%	3.3	60 x 144	60 x 144	60 x 144
1/4" Misco	85.1%	3.3	60 x 144	60 x 144	60 x 144

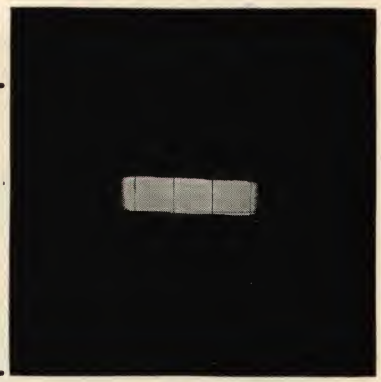


Glare reducing finish not recommended for use in partitions.

Pattern Actual Size

Light Distribution Chart





THICK-NESS	APPROX. LIGHT TRANSM'N	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZES UNTREATED	MAXIMUM SIZES G-R 2 SIDES	MAXIMUM SIZES G-R 1 SIDE
RIBBED					
1/8"	88.5%	2.0	48 x 132	48 x 132	—
7/32"	87.3%	2.8	60 x 136	60 x 136	—
1/4" Wired	86.6%	3.3	60 x 144	60 x 144	—



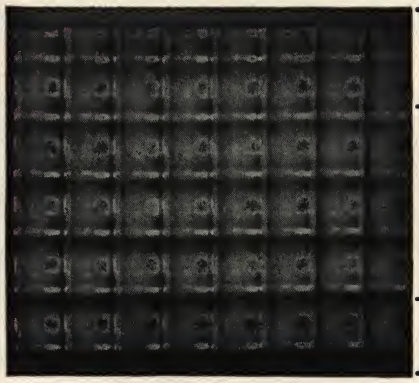


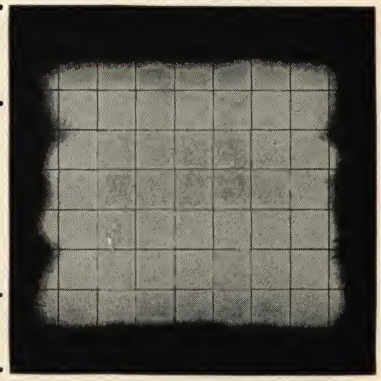
FACTROLITE					
1/8"	87.5%	2.0	48 x 132	48 x 132	48 x 132
7/32"	85.9%	2.8	60 x 136	60 x 136	60 x 136
1/4" Wired	85.1%	3.3	60 x 144	60 x 144	60 x 144





PENTECOR					
1/8"	88.5%	2.0	48 x 132	48 x 132	48 x 132
7/32"	87.3%	2.8	60 x 136	60 x 136	60 x 136
1/4" Wired	86.6%	3.3	60 x 144	60 x 144	60 x 144





MAGNALITE B					
7/32"	81.9%	3.0	60 x 144	—	—
1/4" Misco	80.5%	3.4	60 x 144	—	—

This pattern not glare reduced. Sand blasting is the only surface treatment available.

Glare reducing finish not recommended for use in partitions.

types primarily for decoration

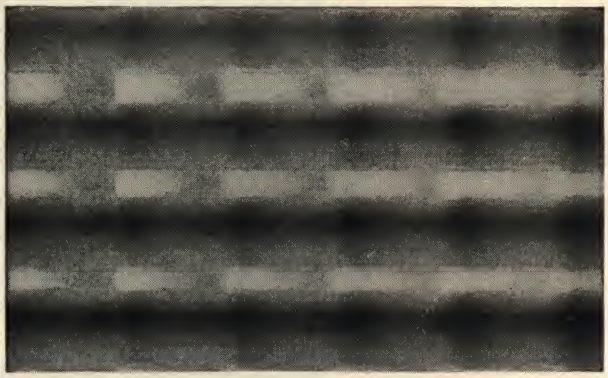


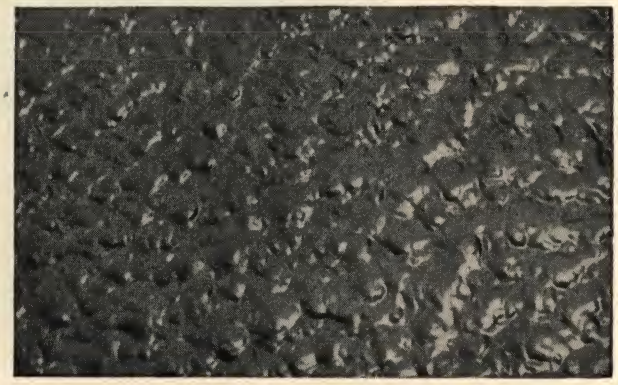
Translucent Mississippi Bandlite makes a graceful entrance . . . offers a dramatic new decorating texture that is distinctively different.

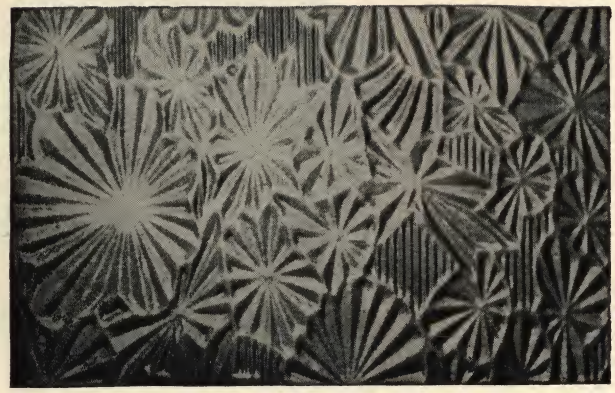


Partitions of Magnalite "A" lend a note of modern beauty, simplicity and smartness to buying booths of Fownes Glove Co., New York.

Pattern Actual Size







THICKNESS	APPROX. LIGHT TRANSMISSION	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZE
MAGNALITE A			
7/32"	81.9%	3.6	60 x 144

Magnalite "A" not glare reduced. Sand blasting is the only surface treatment available.

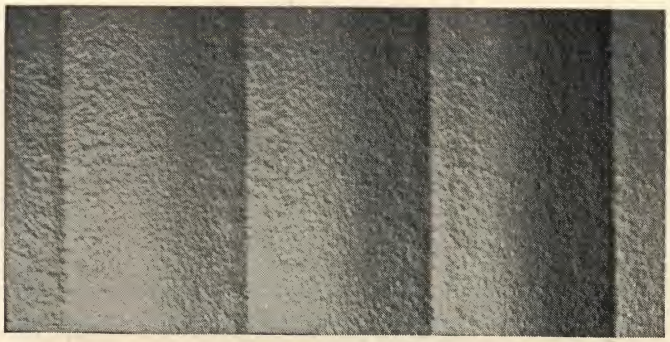
THICK-NESS	APPROX. LIGHT TRANSM'N	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZES UNTREATED	MAXIMUM SIZES G-R 2 SIDES	MAXIMUM SIZES G-R 1 SIDE
SYENITE					
1/8"	87.5%	2.0	48 x 132	48 x 132	48 x 132
7/32"	85.9%	2.8	60 x 136	60 x 136	60 x 136
1/4" Wired	85.1%	3.3	60 x 144	60 x 144	60 x 144

THICK-NESS	APPROX. LIGHT TRANSM'N	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZES UNTREATED	MAXIMUM SIZES G-R 2 SIDES	MAXIMUM SIZES G-R 1 SIDE
FLORENTINE					
1/8"	88.5%	2.0	48 x 132	48 x 132	—

Glare reducing finish not recommended for partitions.

mississippi figured glass

Pattern Actual Size



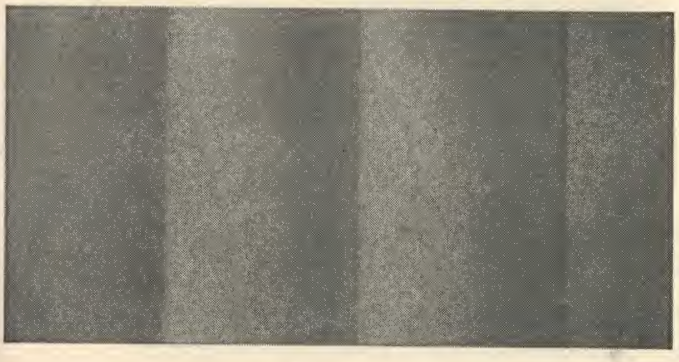
THICK-NESS	APPROX. LIGHT TRANSM'N	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZES UNTREATED	MAXIMUM SIZES G-R 2 SIDES	MAXIMUM SIZES G-R 1 SIDE
BROADLITE					
7/32"	86.3%	2.8	60 x 136	60 x 136	60 x 136

*G-R on flat side only



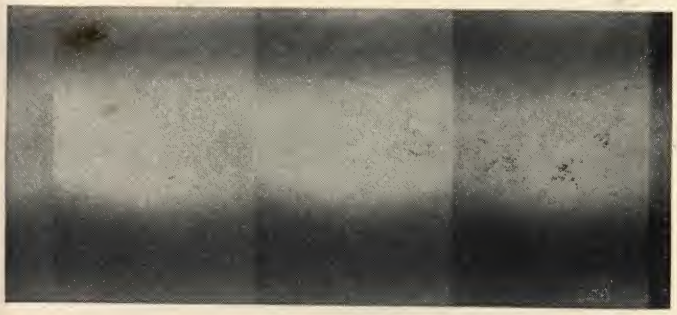
THICKNESS	APPROX. LIGHT TRANSMISSION	MAXIMUM WIDTH	MAXIMUM LENGTH	WEIGHT UNPACKED Lbs.-sq. ft.
BANDLITE				
1/8"	89.0%	54"	132"	2.0
7/32"	89.0%	54"	136"	2.7

The only special finish available on this pattern is Softone—applied to either one or both surfaces.



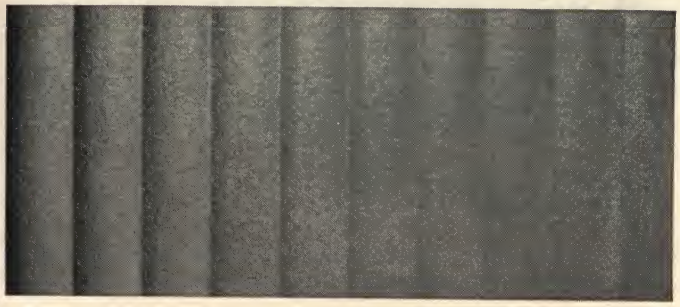
THICKNESS	APPROX. LIGHT TRANSMISSION	MAXIMUM WIDTH	MAXIMUM LENGTH	WEIGHT UNPACKED Lbs.-sq. ft.
BEVELITE				
1/8"	90.4%	54"	132"	2.0
7/32"	90.4%	54"	136"	2.7

The only special finish available on this pattern is Softone—applied to either one or both surfaces.



THICKNESS	APPROX. LIGHT TRANSMISSION	MAXIMUM WIDTH	MAXIMUM LENGTH	WEIGHT UNPACKED Lbs.-sq. ft.
CROSSLITE				
7/32"	870.%	54"	136"	2.7

The only special finish available on this pattern is Softone—applied to either one or both surfaces.

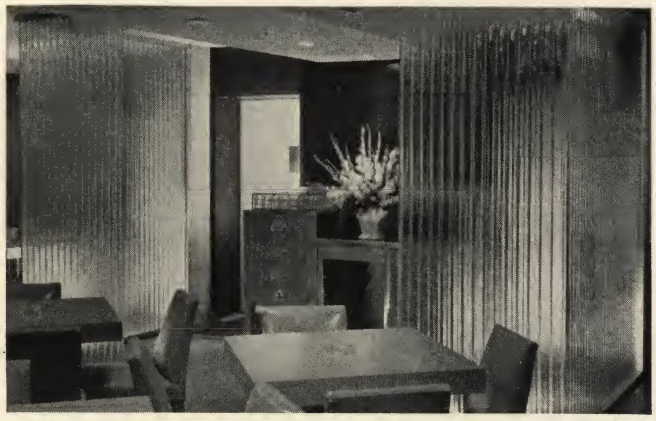


THICK-NESS	APPROX. LIGHT TRANSM'N	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZES UNTREATED	MAXIMUM SIZES G-R 2 SIDES	MAXIMUM SIZES G-R 1 SIDE
PLURALITE					
1/8"	88.0%	1.9	48 x 132	48 x 132	48 x 132
7/32"	86.5%	2.8	60 x 136	60 x 136	60 x 136

Glare reducing finish not recommended for use in partitions.

types primarily for decoration

Structural Corrugated and Structuralite Glass have proven to be items of wide appeal and tremendous usefulness in residential, commercial and industrial applications, both interior and exterior. These modern materials provide the architect with a new media that accents his abilities and creates settings of lasting freshness, beauty and individuality. This is particularly true since the advent of metal moldings which enhance appearance, contribute ease of installation and amplify design possibilities. Of the limitless opportunities for Structural Corrugated Glass, possibly its advantages find fullest expression in partition work. Here, as opposed to walls and enclosures of the conventional types, they borrow light from one room for another... flood areas with soft, mellow illumination. Easily cut to wanted dimensions, simple to install and maintain, the use of Structural glass eliminates mortar joints, plastering, painting and refinishing. Glass never wears out... is easy to clean. And Structural Corrugated Glass partitions can be removed if necessary and used again elsewhere.



Translucent daylighting wall of Structural Corrugated glass adds warmth and atmosphere to this commercial interior.

advantages

Brilliance, strength, true cutting surface and excellence of quality combine with moderate cost to make Mississippi Structural Corrugated Glass and Structuralite the choice of thousands of architects, engineers, builders and contractors. Architects are constantly developing new and interesting uses for these two types of glass and the universal application of these patterns is indicative of the many intriguing possibilities in this outstanding new medium of architectural expression.



Simplicity and smartness of this modern office is accented by floor-to-ceiling partitions of Structural Corrugated glass.

when ordering

The first dimension (width) is across the corrugations. The second dimension (length) is parallel to the corrugations. The standard widths are 25″ and 50″. Our price to the distributor is based on these standard widths. A light under 25″ wide is billed as though it were 25″ wide and a light between 25″ and 50″ wide is billed as being 50″ wide. "Combination" widths are not furnished as such; for example, a light 30″ wide and one 20″ wide will not be supplied as one 50″ light, but will be charged for as one light 50″ wide and one 25″ wide. Lengths are charged at the actual length furnished (with fractions raised to the next inch).

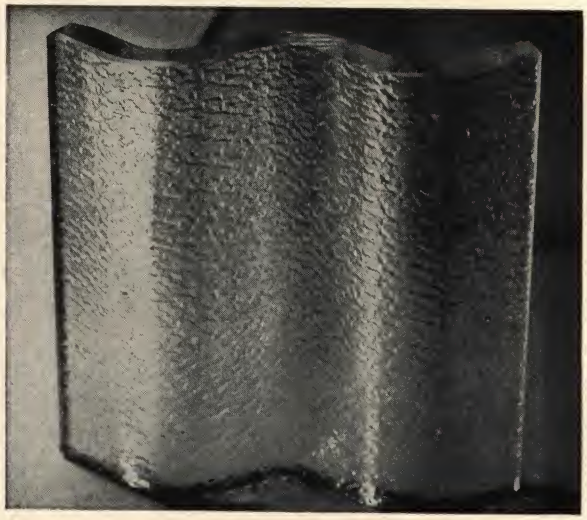


Contemporary design combined with the luxurious simplicity is achieved through a partition of Structural Corrugated Glass in residence of Kemper Nomland, A. I. A.

STRUCTURAL CORRUGATED GLASS



CROSS SECTION HALF SIZE



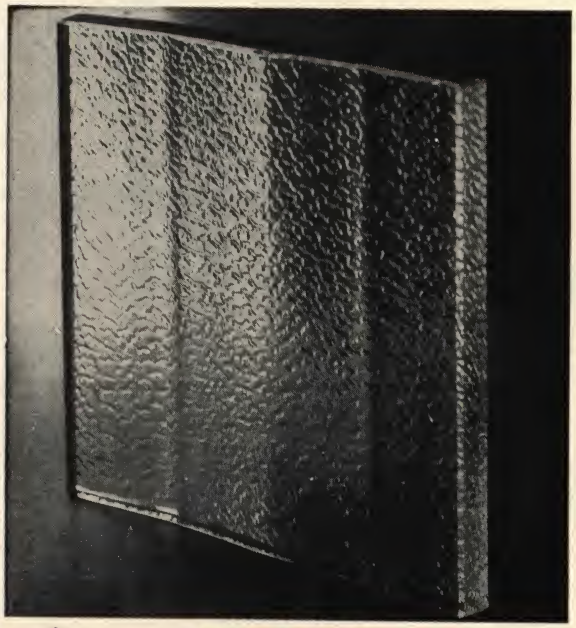
PATTERN HALF SIZE

THICKNESS	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZE
3/8″ Overall 1″	6.3	50 x 144

STRUCTURALITE GLASS



CROSS SECTION HALF SIZE



PATTERN HALF SIZE

THICKNESS	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZE
3/8″ Overall 1/2″	5.3	50 x 144

surface treatments

With one surface slightly stippled in the manufacturing process to afford obscurity and light diffusion, Structural Corrugated Glass and its companion product, Structuralite transmit soft light that dramatizes any setting in which they are employed.

SAND BLASTING

Either or both surfaces can be furnished sand blasted in sizes up to 50″ by 144″. The factory's charge for sandblasting is based on actual size furnished without regard to the standard widths.

PAINTING

Structural Corrugated Glass that will be exposed to the sun or that is close to radiators should never be painted. Breakage may occur when this instruction is not heeded.

edgework

CUT EDGES

So called "clean cut" edges cannot be furnished; factory cut edges will usually contain some spalls, projecting points and cutbacks.

GROUND EDGES

All edges can be furnished flat ground, but are subject to some spalls. We cannot furnish seamed or polished edges, but distributors may be able to do such work.

dimensional tolerances

WIDTH TOLERANCE

With cut sides, plus or minus 1/8″

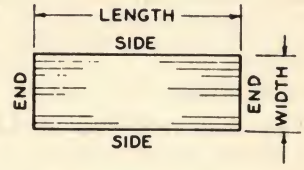
With ground sides, plus or minus 1/16″

LENGTH TOLERANCE

With cut ends, plus or minus 3/16″

With ground ends, plus or minus 1/8″

(See drawing at right)



design

Wherever possible sketches showing installation details should be sent to us by distributors. Where a length run of butt-joined edges is involved, we can obtain more accurate results if we know also the size of the opening to be filled. We are anxious to assist in any way possible in solving any problem that may arise in connection with the use of Structural Corrugated and Structuralite Glass.

types primarily for decoration

measuring and cutting

STRUCTURAL CORRUGATED

Measuring and cutting of Structural Corrugated Glass are always done on the smooth surface. Cutting to width (splitting) is ordinarily done at the top of the corrugation, resulting in widths that are multiples of 2½". When necessary, cuts may also be made along the bottom of a corrugation, yielding widths that are multiples of 1¼". However, such cutting results in the two edges lying in different planes. While cutting to width can be done at any other part of the sheet, this invariably results in either a flare or a cutback that must be gound off. An extra charge is made for edge grinding of any light cut on the slope of the corrugation. Slope-cut edges cannot be butt-joined.

STRUCTURALITE

Structuralite Glass can be cut to any given width subject to our usual tolerances without the necessity of grinding an edge to achieve widths that are not multiples of 2½" or 1¼". Dimensional tolerances are the same as those for Structural Corrugated Glass. The following table along with illustrations at right will be of assistance in problems involving edge work.

mitering

STRUCTURAL CORRUGATED

Sides parallel to the corrugation can be furnished mitered ground to any reasonable angle. Mitering cannot be done at the top or bottom of a corrugation. The angle is turned about a point ¾" from the surface of each light. As the included angle decreases, the width of the glass increases as shown in table on this page. (The amount of increase in width is the sine of ½ of the included angle by ¾".) All measurements and cuts made on the smooth surface. If absolutely necessary to have the smooth surface on the included side of the angle, measurements and cuts can be made on the rough surface but the resulting edgework may be inaccurate and inferior.

Note: STRUCTURALITE—The conditions applying to Structuralite are identical with those for Structural Corrugated Glass. Please supply full details.

special operations

PATTERN CUTTING

Lights with shapes other than rectangles are considered pattern lights, which include shapes with circular sides, diagonal sides, etc. Pattern cutting is generally done with a diamond saw or by masking and sandblasting. An extra charge is made for this work. When obtaining quotations, sketches clearly showing the required shapes, with dimensions, should be submitted. (See drawing at right).

NOTCHING

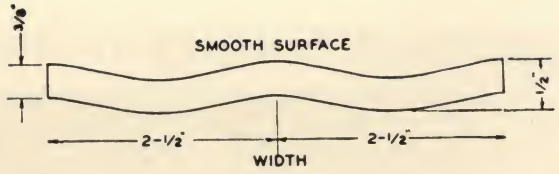
Simple corner notches can be supplied. These notches greatly increase the chances of breakage in transit and in installation. No responsibility can be assumed for such breakage. Prices for notching will be quoted to distributors upon receipt of sketch and specifications. (See drawing at right).

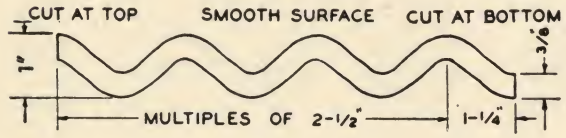
HOLES

Small holes up to 1" diameter can be drilled by sandblasting or diamond drill. Prices quoted distributors upon request. Holes naturally weaken the glass and no responsibility can be assumed for breakage. Large holes cut out of the interior of the sheet are not practical.

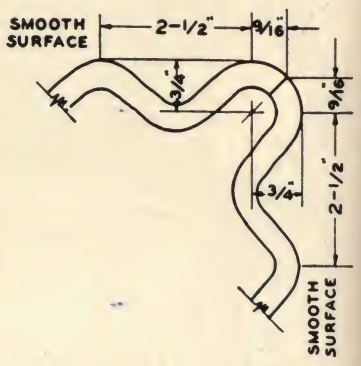
BENDING

While the manufacturer does no bending, the glass can be bent by companies having suitable bending equipment. Full information should be obtained from concerns performing this type of work.

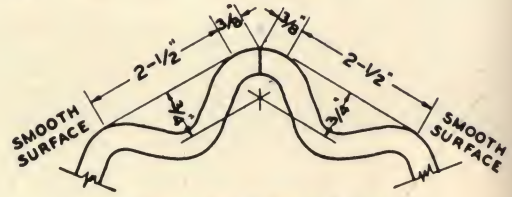




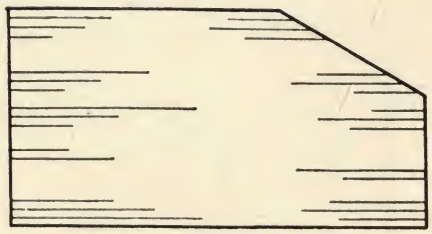
Included Angle	Increase in width Nominal	(Actual)
180°	0"	
170°	1/16"	(.0654)
160°	1/8"	(.1302)
150°	3/16"	(.1941)
140°	1/4"	(.2565)
130°	5/16"	(.3170)
120°	3/8"	(.3750)
110°	7/16"	(.4302)
100°	1/2"	(.4821)
90°	9/16"	(.5303)
80°	9/16"	(.5745)
70°	5/8"	(.6144)
60°	5/8"	(.6495)



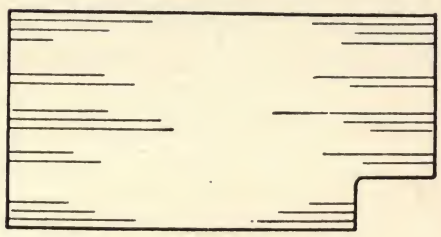
INCLUDED ANGLE = 90°



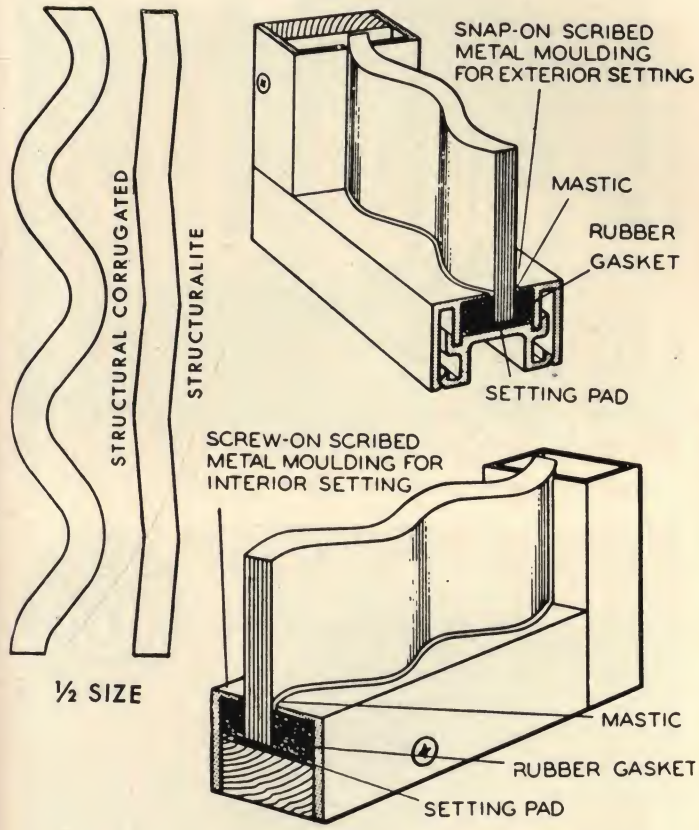
INCLUDED ANGLE = 120°

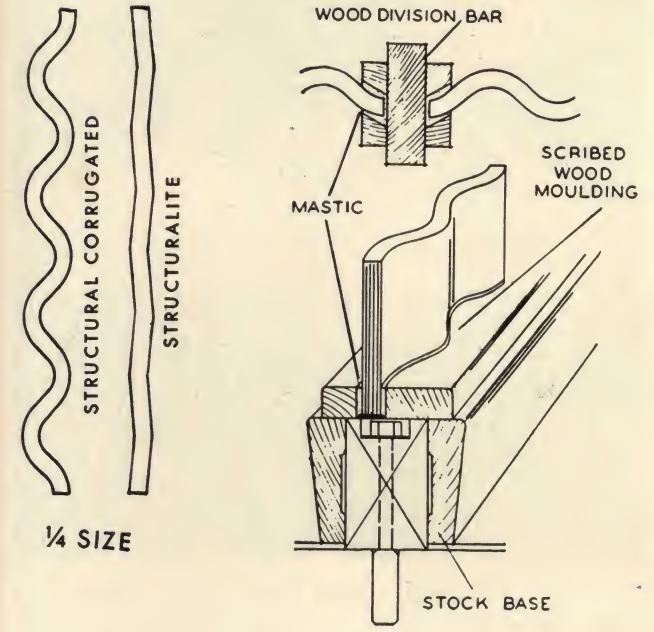


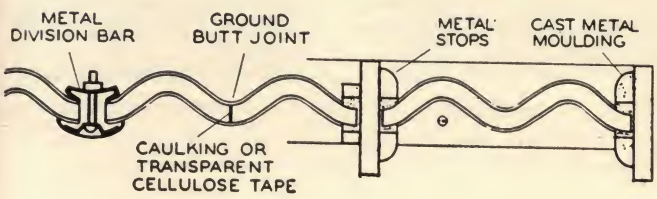
A PATTERN LIGHT



A CORNER NOTCH







installation

GENERAL SETTING PRACTICE

Structural Corrugated Glass should never be glazed directly on hard metal, masonry, or other unyielding base. Where a base of this kind is necessary, wood setting blocks or other cushioning material of adequate size and shape should be used. This glass should never be set directly in concrete, nor wedged tightly into an opening. Allow not less than ⅛″ on each side jamb. The factory does not supply molding trim or fittings.

INTERIOR SETTING PRACTICE

Butt Joints—Where this glass is set edge to edge, the sides of the abutting lights must be accurately ground. For better appearance ground edges are first painted with a clear cellulose acetate lacquer or transparent cellulose tape may be applied. This will serve to remove the white, ground-glass edge when viewing the installation from an oblique angle, and will prevent touching and spalling.

Division Bars—This glass can be set with division bars of metal, wood or plastic which may either be specially designed for the purpose are made up of stock shapes. Unless the division bars provide coverage of at least ½″ from the edge of each light, the edges of the glass should be ground.

Moldings—Head and sill moldings are generally used to hold the glass in place. Unless used in connection with ground edges, moldings should be at least 1″ deep to cover any spalls or chips. Moldings may be of wood or metal and may be made to bend the contour of the glass, or may be straight with the contour filled by scribed wood fillers, gypsum casting plaster, putty or glazing compound. Wood molding should be primed before setting and the material used to fill the contour should be colored to match the finish trim.

Setting Without Molding—This glass is sometimes set with pegs or blocks shaped to fit one or more corrugations. Installations of this type require ground edges. Care must be used to fit the pegs to insure a firm setting. It is often necessary to adjust the opening to fit the glass by the use of fillets or furring.

EXTERIOR SETTING PRACTICE

Butt Joints—All butt joints, including mitered joints in exterior installations should be made waterproof by using a filler much as show case cement.

Division Bars—Weatherproof tape should be used between the division bars and the glass, both inside and outside.

Moldings—The glass should be bedded in glazing or caulking compound, colored to match the molding and head, sill and side jambs. Plaster filling should not be used for exterior installations.

types primarily for protection

Constant fire protection at minimum cost, together with maximum daylight illumination characterizes Mississippi Wire Glass... the original solid wire glass upon which the standard was based in 1899... the standard today by which all others are judged.

uses

The ability of Mississippi Wire Glass to remain in an opening even after cracking or accidental breakage makes it most suitable for skylights, overhead glazing or any situation in which flying glass would be dangerous. The stubbornness with which Mississippi Wire Glass withstands abuse and remains in the sash also makes it admirably suitable for protection against burglars.

advantages

FIRE PROTECTION PLUS APPEARANCE

The advent of diamond shaped, welded Misco netting in wire glass has removed the objection held by many to the "chicken wire" effect of the netting used in wire glass for so many years. Polished Misco is the highest achievement of the rolled glass manufacturer's art, combining the utmost in protection with modern beauty. The development of Polished Misco is the result of many requests from the architectural and engineering professions for a fire retardant glass as efficient as hexagonal wire glass, but more attractive in appearance. Blending harmoniously with modern buildings, it enhances any installation with its highly interesting design, while affording approved fire and breakage protection.

APPROVED FIRE RETARDANT

Over the years wired glass has proved itself as a fire retardant to such an extent that Underwriters' Laboratories no longer consider it necessary to test it.

A measure of permanent fire protection afforded by Mississippi Wire Glass is the test this product had to withstand in order to obtain approval as Fire Retardant No. 32 given by Underwriters' Laboratories, an approval this product enjoyed for 60 years. This test can be described briefly as the glazing of several wire glass windows in a removable wall of a gas-fired furnace. The temperature of the glass is raised to approximately 1600 deg. F. in 45 minutes and held at this point for an additional 15 minutes. At the end of this time the furnace wall in which the wired glass is glazed is moved aside, the glass then being subjected to the 1⅛" stream from a fire hose applied at 35 to 40 pounds of pressure. Passing this test consists of the glass remaining in the sash and remaining substantially unchanged except for the cracking due to thermal shock.



Privacy plus protection against breakage or fire is achieved with this installation of Smooth Rough Misco wire glass.



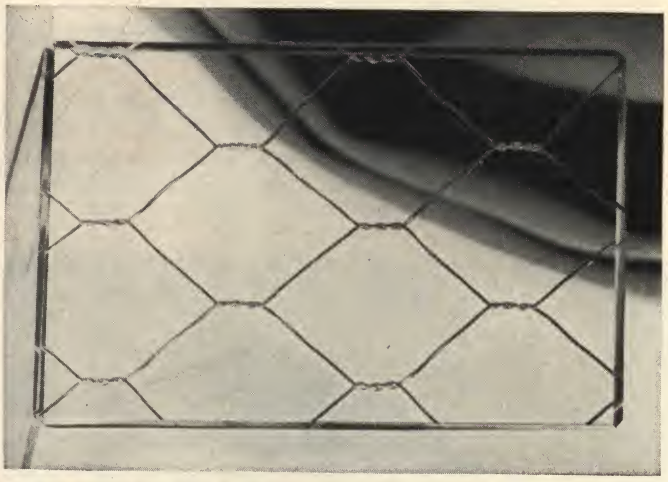
"As in most serious fires, exposed buildings were threatened by the raging fire in their midst. That these buildings were not involved is a tribute to the efficient work of the Chicago Fire Department and to the effectiveness of wire glass windows in metal frames."

From April, 1951 issue NFPA Quarterly, published by National Fire Protection Association.

polished wired glass



MISCO—actual size

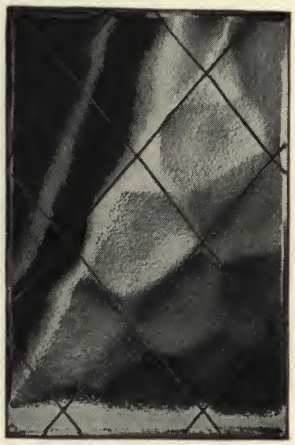


HEXAGONAL NETTING—actual size

translucent wired glass



HAMMERED MISCO



SMOOTH ROUGH MISCO

Hammered pattern also available in hexagonal mesh.
Smooth Rough available in hexagonal mesh on Pacific Coast only.

specifications

polished misco wired glass

THICKNESS	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZE
¼″	3.4	60 x 132

specifications

hexagonal netting polished wired glass

THICKNESS	WEIGHT UNPACKED Lbs.-sq. ft.	MAXIMUM SIZE
¼″	3.4	60 x 132

underwriters requirements

Standard wired glass, ¼″ in thickness, is to be used in labeled fire window frames and in such labeled fire doors and fire door frames as are recognized. Fire Underwriters list classifications of Wire Glass sizes permissible for: (1) Openings in corridors and room partitions, (2) Openings in exterior walls, (3) Openings to exterior fire escapes, and (4) Openings in vertical shafts.

how to specify

Mississippi Wire Glass shall be installed in (specify location) and in all places marked "W.G." on plans and elevations. The wire glass is to have a thickness of at least ¼″ at thinnest point. Wire mesh not to be larger than ⅞″ and no wire used for such mesh to be smaller than No. 24 B&S gauge. Specify standard woven wire or welded Misco wire mesh. State name of glass pattern and location in which it is to be installed. In wire glass the first dimension, or width, is across the sheet; the second dimension, or length, is, except in Coolite (see page 18), always parallel to the twists in hexagonal netting.

heat absorbing glass

Of a cool, blue color with a slightly greenish cast, Coolite is composed of special ingredients that give it the highly important and desirable properties of heat absorption and the ability to soften light. Coolite reduces solar heat radiation. In simplest terms, the interception of solar heat by Coolite is the result of several factors. Tests on ¼″ Polished Coolite prove that approximately 80% of the solar heat is intercepted by being reflected and absorbed, and that only 20% passes through the glass without interference. The energy that is absorbed raises the temperature of the glass which then theoretically re-radiates heat equally from both the inner and outer surfaces. Actually, however, more than half of this heat is dissipated outside the building because of greater air circulation.

Features — Improved production, reduction in cost of manufacturing as well as money saved due to the lessened load on air conditioning and humidification equipment frequently result from the use of Coolite.

LUXLITE COOLITE — The refreshing and practical Luxlite pattern on Coolite Heat Absorbing and Glare Reducing Glass, now regarded as standard, is appropriate for use in practically every type of installation and its nearly smooth yet rough texture while assuring adequate obscurity in no way detracts from its easy to clean quality. For photograph of pattern see page 8.

HAMMERED COOLITE—The traditional hammered pattern invariably associated with heat absorbing glass is also available until further notice. For photograph of pattern see page 8.

WIRE — For heat absorption with protection Coolite is available with wire in both Luxlite and Hammered patterns. Coolite wire glass is furnished in ¼″ thickness in Hexagonal Mesh. Maximum width, 34″, maximum length, 144″. Weight unpacked 3.4, weight packed 4.0. In the absence of specific instructions Coolite Wire Glass will be shipped with the twist of the wire running parallel to either the first or second dimension specified, whichever is most convenient.

Sizes and thickness — Coolite is made in ⅛″, ¼″ plain, and ¼″ wired. Maximum width of ⅛″ Coolite, 34″. Maximum length, 132″. ¼″ Coolite (plain or wired), maximum width, 34″, maximum length, 144″.

Please see installation recommendations on Coolite Wire glass in latest Coolite Catalog.

COOLITE — Samples and Catalog — For additional information on Coolite, please request latest Coolite catalog. Samples of Coolite and Coolite Glare Reduced (with or without wire) will be gladly furnished upon request.

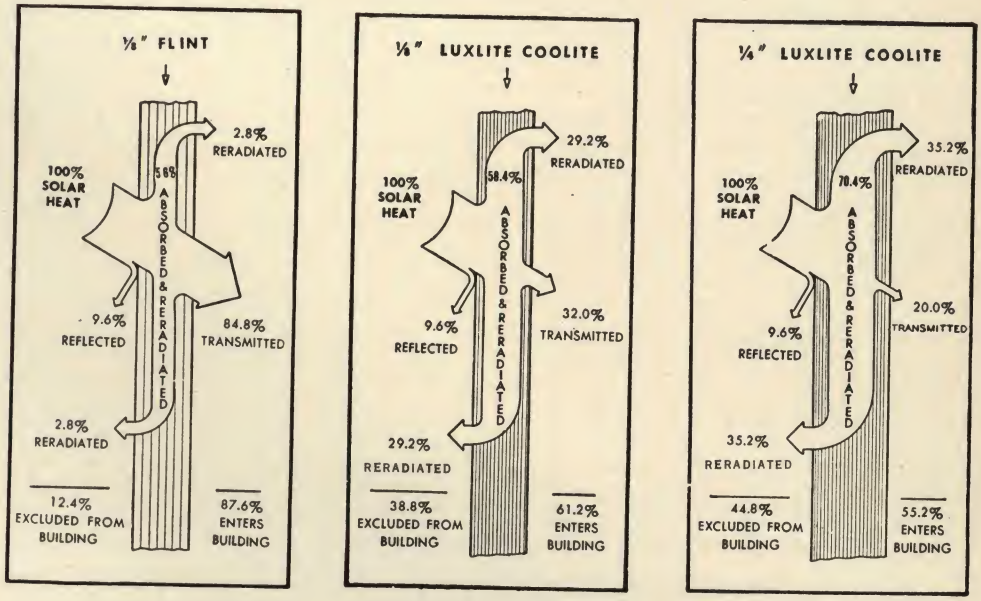
GLARE REDUCING FINISH for Coolite—When specified, glare reducing finish can be applied to either or both surfaces of Coolite glass. This finish is permanent, is not affected by time and weather and will never have to be renewed.



Coolite glass in John J. Kane, Allegheny County Institution District (Hospital for the Indigent Sick).
Associate Architects: Button & McLean — Mitchell & Ritchey, Pittsburgh, Pa.

Performance

Tests were made with two identical enclosures exposed to direct solar radiation, one covered with ¼" Hammered Coolite, the other covered with ordinary ¼" Hammered glass. It was found that the average air temperature inside the enclosure covered with ordinary hammered glass had increased 22°F., whereas the air temperature inside the enclosure covered with hammered Coolite had increased only 11°F.



COOLITE Transmission (Approximate Coolite Transmissions in % Total Light)

G-R DENOTES GLARE REDUCING	VISIBLE LIGHT		TOTAL SOLAR ENERGY		SPECIFICATIONS	
	Smooth Side Toward Light Source	Figured Side Toward Light Source	Smooth Side Toward Light Source	Figured Side Toward Light Source	Weight Unpacked Lbs. Per. Sq. Ft.	Maximum Sizes
†⅛" Polished 2 Sides Test Sample	62		32			
⅛" Hammered or Luxlite (Unetched)	60	60	28	28	2.0	34 x 132
⅛" Hammered or Luxlite G-R Smooth Side Only	58	47	27	22	2.0	34 x 132
⅛" Hammered or Luxlite G-R Figured Side Only	47	58	22	27	2.0	34 x 132
⅛" Hammered or Luxlite G-R Both Sides	45	45	22	22	2.0	34 x 132
†¼" Polished 2 Sides Test Sample	51		20			
¼" Hammered or Luxlite (Unetched)	50	50	20	20	3.3	34 x 144
*¼" Hammered Hexagonal Mesh Wire					3.3	34 x 144
*¼" Luxlite Hexagonal					3.3	34 x 144
¼" Hammered or Luxlite G-R Smooth Side Only	49	40	20	15	3.3	34 x 144
¼" Hammered or Luxlite G-R Figured Side Only	40	49	15	20	3.3	34 x 144
¼" Hammered or Luxlite G-R Both Sides	36	36	14	14	3.3	34 x 144

†Figures for Coolite Polished 2 sides are given only because Federal Specification DD-G-451a requires transmission figures on polished sample. Coolite is not sold polished.

*Transmission values for ¼" wired glass can be taken as 1-2% lower than corresponding values for ¼" unwired.

Note: If it is desired to compare the performance of Coolite with that of ordinary clear glass, the reference to loss by reflection on page 5 is pertinent and should be considered.

COOLITE and Air Conditioning

Extensive investigations dealing with the reduction of instantaneous heat gain by means of heat absorbing glasses as applied to the cooling load or the required capacity of air conditioning equipment have been conducted and reported by the American Society of Heating and Air Conditioning Engineers. (Heating, Ventilating and Air Conditioning Guide—Cooling Load Chapter.) The use of Coolite in a building to be air conditioned will reduce the cooling load due to the fenestration to approximately one half that of a corresponding installation made with regular non-heat absorbing glass, thereby reducing the neaessary air conditioning capacity accordingly. This in turn will result in either an actual saving or an additional margin of capacity for the equipment, as the architect may choose.

Installation Recommendations

Plain Coolite is not recommended for installation where glare reducing qualities are required. In such cases Coolite with special glare reducing finish should be used. Where glare is a source of annoyance and of severe nature, windows should be glazed with ¼" Glare Reducing Coolite Glass. Where light intensity is not extreme and glare is moderate, ⅛" Glare Reducing Glass can be satisfactorily installed. For installation recommendations on Coolite Wire Glass please see latest Coolite Catalog.

Selection Factors

Fundamentally, heat absorbing glass is made to reduce the transmission of solar radiation which differs from that of an artificial source such as a heat lamp or projection lamp which emits a very high percentage of infra-red radiation not possible to obtain from sunlight. Therefore, in all quick tests or demonstrations of heat absorbing glass, the procedure specified by the National Bureau of Standards should be employed in order to make a reasonably true comparison. For example, glass may be made to transmit very little infra-red radiation of the wave lengths emitted by an ordinary electric lamp, but the amount of solar heat transmitted by this glass could be relatively high. Therefore, different types of glass cannot be placed in front of an electric light in order to determine accurately and scientifically which is best for reducing solar heat transmission. Consequently, the testing or demonstrating apparatus in which an electric light is used as a heat source must be equipped with the proper filter to make the artificial heat source reasonably comparable to sunlight.

MISSISSIPPI GLASS

ordering

Glass should always be ordered sufficiently in advance of actual need so as to allow ample shipping and installation time. When specifying sizes it should be remembered that the first dimension is understood to be the width, which is across the pattern as rolled. The second dimension is understood to be the length which is the direction in which the figured or fluted pattern runs.

assistance

The services of Mississippi Glass Company representatives and its network of distributors are available to architects. Special problems are frequently referred to our Research Department for attention. Literature is available on all types of Mississippi Glass for use in residential, commercial and industrial installations. Free samples on request.

distribution

Mississippi Glass is available from most leading distributors of quality glass in all principal cities of the United States and in Canada from Canadian Pittsburgh Industries Limited, Hobbs Glass Division.

MISSISSIPPI GLASS COMPANY

GENERAL SALES OFFICES

88 ANGELICA ST., ST. LOUIS 7, MO.

District Offices

Chanin Bldg., 122 E. 42nd St.,
New York 17, New York

201 North Wells Street,
Chicago 6, Illinois

Fullerton, California

Factories

St. Louis, Missouri

Floreffe, Pennsylvania

Fullerton, California

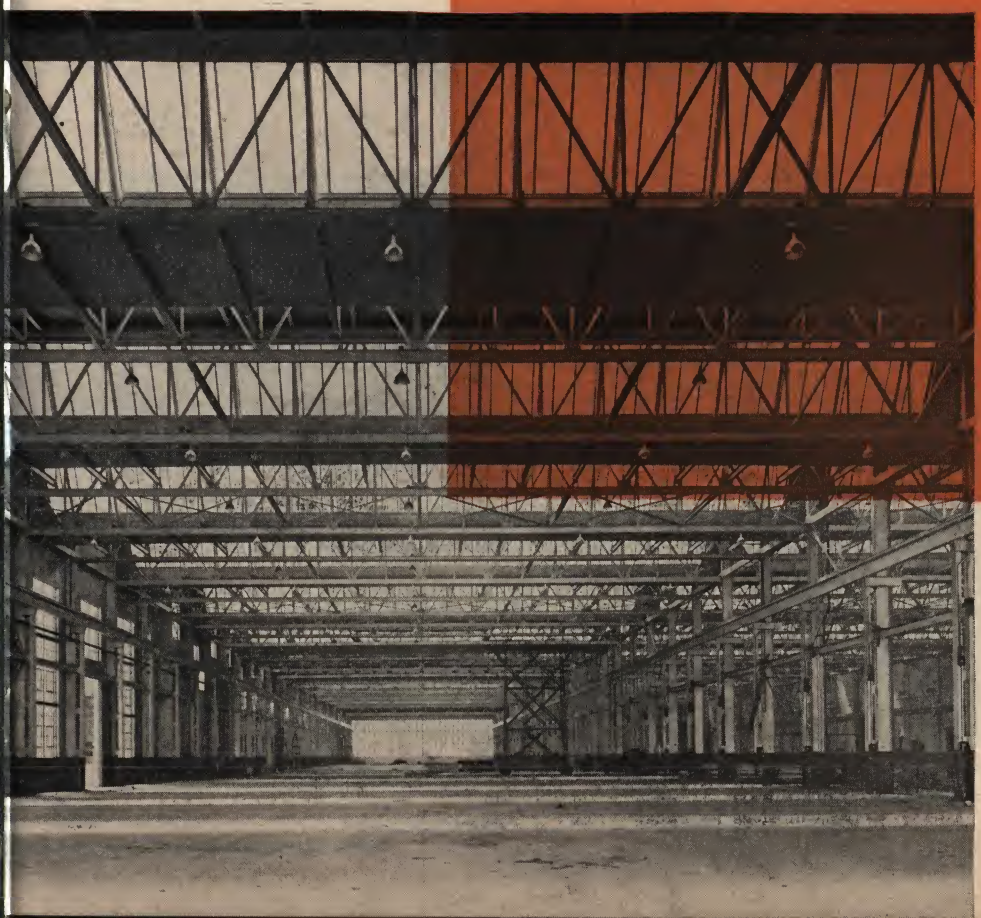
Distributed by

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Printed in U. S. A.



design your daylighting with... Pennsylvania

corrugated wire glass



PENNSYLVANIA WIRE GLASS COMPANY

Glass the PROVED material for designed daylighting

Daylight is one of the world's most prized possessions. It has a cheering and healthful effect on humans wherever they may be. For these reasons modern buildings are being carefully designed to provide as much daylight inside as possible.

Outdoors daylight is cheap. Indoors it may be expensive. This is so important that bringing daylight inside a building through skylights, sidewalls and windows is a major design and economic problem for all factors of the building industry.

No matter what type of light transmitting product is selected, the owner pays for his daylight at a rate dependent upon the light transmitting quality of the product. The selection of a product which will provide maximum light transmission at minimum cost over the life of the building and at the same time meet other economic factors deserves the most searching study.

Glass is the *proved* daylighting material

For centuries glass has been the only product which can meet successfully all of the qualifications for a satisfactory daylighting material. Some of these characteristics are outlined below:

Check List

LIGHT transmission: Pennsylvania Corrugated Wire Glass (Type 111B in Fed. Specs. DD-G-451a) transmits approximately 83% of direct sunlight and 81% of diffused blue sky (North light). This compares with transparent glass ¼" thick which transmits approximately 88% of sunlight and 82% of diffused blue sky.

hardness—Because glass is hard it provides permanent protection against the abrasive action of dirt in the atmosphere. This is especially important in heavily industrialized areas.

acid resistant—Glass is highly resistant to practically all atmospheric gases, acids and rarely shows etching even over long periods of exposure.

fire resistant—Glass will not burn, char or support combustion. Its protection against fires has saved many lives and millions of dollars in property damage.

long-life—Due to the inherent characteristics of Corrugated Wire Glass, low maintenance costs and long-life are vitally important features of any Corrugated Wire Glass installation.

sanitary—Glass is easy to clean and more sanitary than some materials used for the same purposes.

strong and rigid—In its different forms glass is available to meet unusual strength and rigidity requirements and retains these properties under all normal conditions.

stable—The expansion and contraction of glass due to weather temperature changes can be foreseen and provided for in the design of sidewalls and skylights.

versatile—Glass is available in many forms but the type selected should meet the most exacting conditions for skylight and sidewall construction. Corrugated wire glass, white or actinic (Heat Absorbing) types provide the designer with a glass which meets the most exacting conditions.

Corrugated Wire Glass

Like metals glass is stronger when corrugated. It can span greater distances without supporting frames. With wire embedded corrugated glass will not shatter under impact.

Corrugated Wire Glass used in skylights can span up to five feet between roof purlins without any longitudinal support or danger from sagging. The clear span can be eight feet when Corrugated Wire Glass is used for sawtooth, vertical monitors or sidewall windows. Corrugated Wire Glass is ⅜" thick and 2.52" between corrugations. It meets the requirements of Federal Specification DD-G-451a.

Because the glass is corrugated it is possible to design into each glass joint expansion and contraction features not available with many other products. Corrugated Wire Glass can be used with any type of roofing or siding, an important factor in many projects. The corrugations are natural rain gutters; the glass is self cleaning. Condensation will drain along the bottom of the corrugations and to the outside through suitable outlets provided in the design.

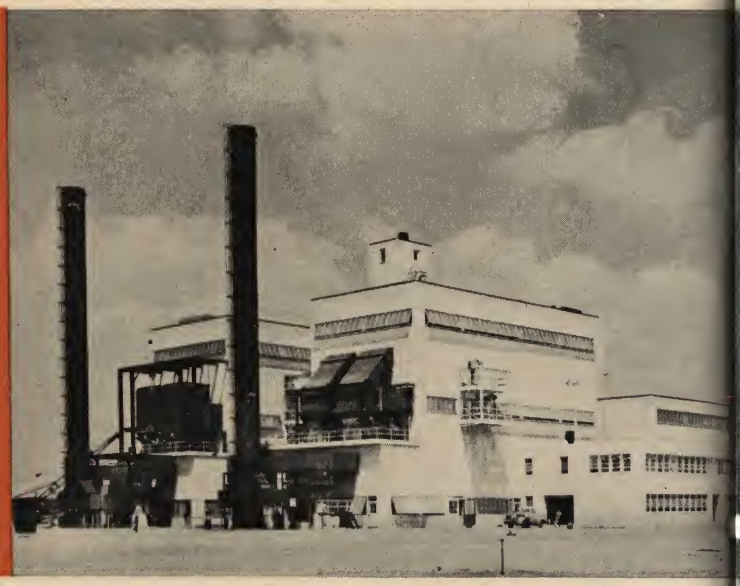
Actinic Corrugated Wire Glass

Heat and glare from sky and sun are greatly controlled by actinic glass. This glass is amber in color and was designed especially to give relief inside a building while permitting the transmission of valuable light. Actinic glass also meets the requirements of Federal Specifications DD-G-451a. This special glass is used largely on areas facing south and west where solar heat and glare are strongest. Tests prove that a floor is 20°F. cooler under Actinic Corrugated Wire Glass than under ordinary Corrugated Wire Glass. Actinic Corrugated Wire Glass brings indoors almost the same white light as that outdoors, increasing the ability to perform tasks which would otherwise be more difficult or impossible.

Pennsylvania Corrugated Wire Glass for every type of building



church: Methodist Church, Delaware County, Penna.
architects: Carroll, Grisdale and Van Alen.

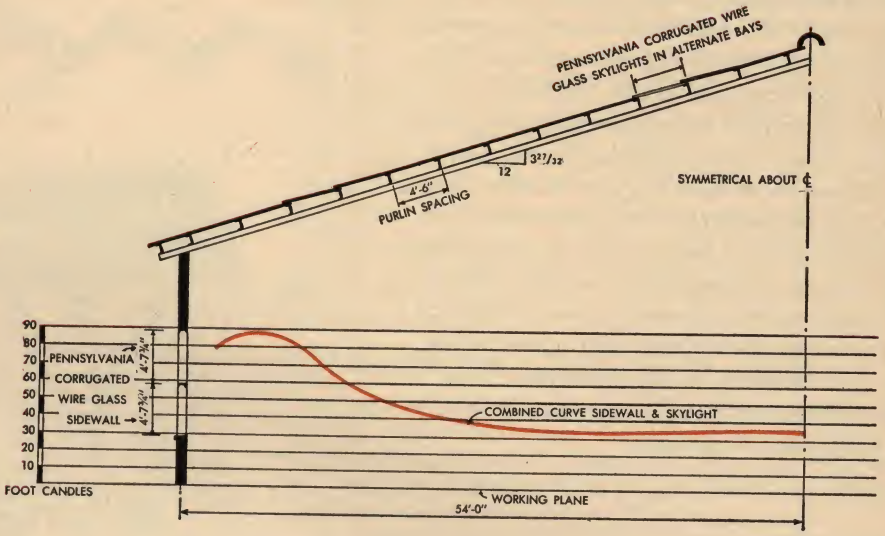


power plant: Florida Power Corp., Ellaville, Florida
cons. engrs.: Black & Veaton.

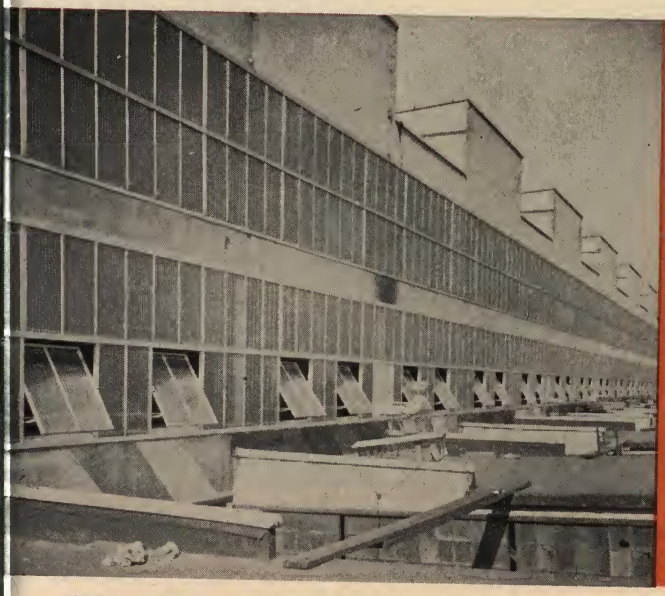
Design with Daylight

One of the many features of CWG skylights and sidewalls most appreciated by engineers and architects is that of designing in advance of constructions the amount of daylight to be admitted to the building. As illustrated by the typical charts at right, this can be predicted and the number and areas of windows and skylights planned accordingly. The Pennsylvania Wire Glass Co. will be glad to cooperate with building designers on this important factor in building planning.

Available are sample charts showing intensities for different types of skylights and variable ceiling heights. Daylight intensities are calculated at floor level with no sidewall lighting. Clean white glass is used as a basis and the prediction is always for an overcast, mid-winter day. However, similar predictions can be made for any specified set of conditions.



NOTE
INTENSITIES INDICATED ARE APPROXIMATE FOR CLEAN WHITE GLASS, AT NOON, ON AN OVERCAST MIDWINTER DAY. ASSUMED WINDOW BRIGHTNESS 150 C.P. PER SQ. FT. AT INSIDE SURFACE OF GLASS. INTENSITIES CALCULATED AT FLOOR LEVEL.



industrial: U.S. Navy Yard, Philadelphia, Penna.
Bldg. 57, Smithery and Structural Shop



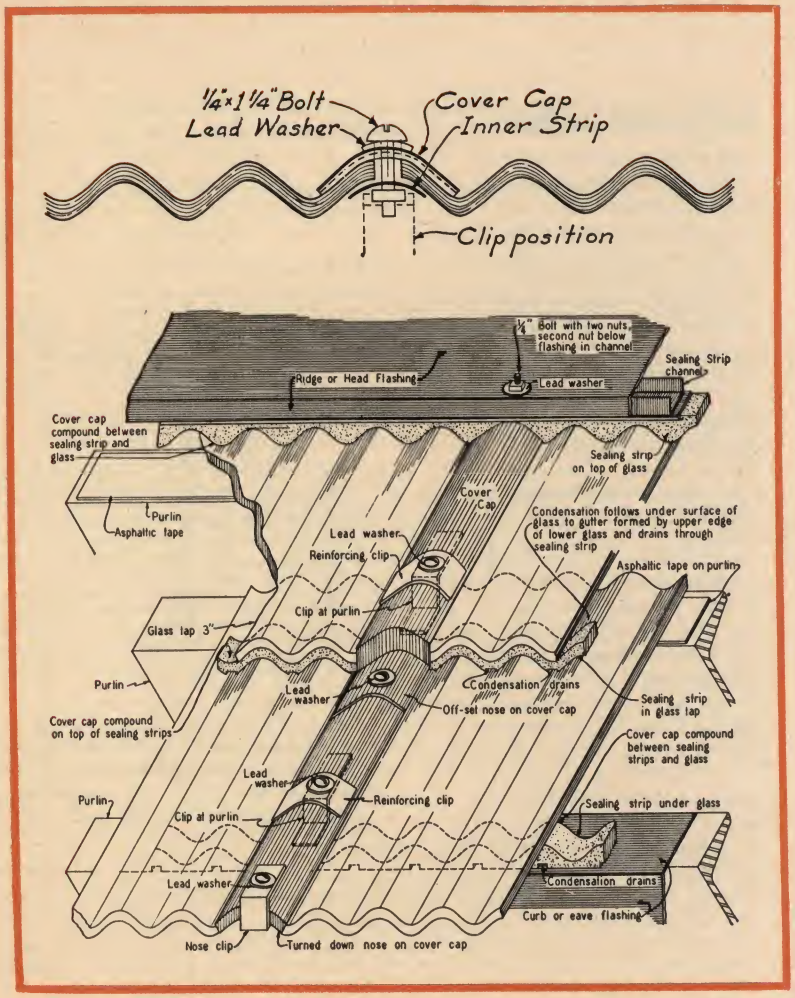
school: Center Line High School, Detroit, Mich.
architects: Brender & Van Reyendam

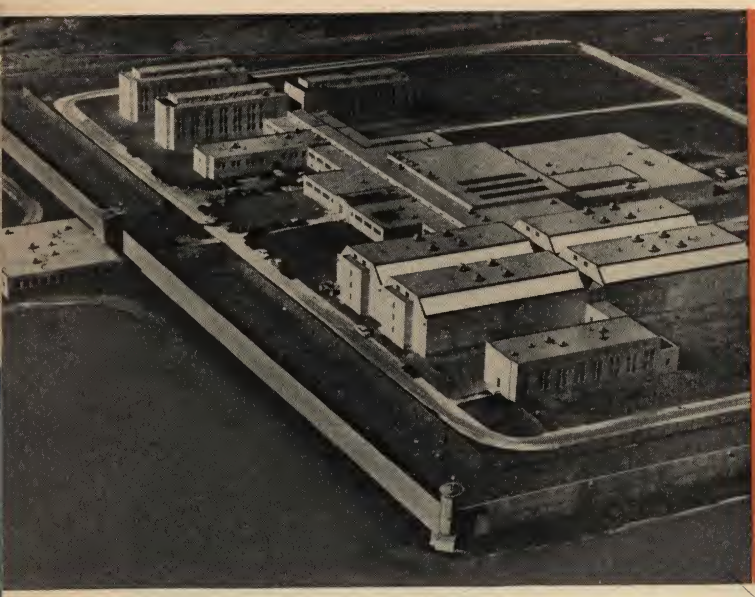
Pennsylvania Corrugated Wire Glass

Construction is a complete unit of glass and sheet metal parts. A standard unit or sheet measures 27¾" wide, ⅜" thick with an overall depth of 1⅛". Full corrugations measure 2½". It's the corrugation plus the encased wire—which is imbedded while the glass is still in its molten stage that provides the heavy-duty strength which enables Corrugated Wire Glass to withstand punishing machinery traffic vibrations. There are no bars to corrode. Solid sheet metal parts of aluminum or copper eliminate painting problems. Expansion and contraction are provided at each glass joint to keep breakage to a minimum. No supplementary frame is used. Corrugated Wire Glass is applied directly on wood, steel or concrete.

Service

Pennsylvania Wire Glass Company maintains a FREE engineering service that will work hand-in-hand with the designer or builder. Send us a rough sketch or details concerning your own SKYLIGHT, SAWTOOTH, or SIDEWALL CONSTRUCTION problem. We shall be happy to suggest the way in which Pennsylvania Corrugated Wire Glass products can most efficiently and economically serve your needs.



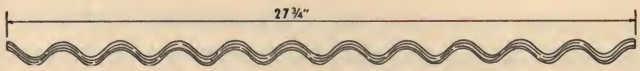


prison: Norfolk, Massachusetts
architects: Desmond & Lord



government building: Lexington Signal Depot, Lexington, Kentucky

typical specification



Standard light corrugated wire glass
Thickness—⅜" • Overall Depth 1⅛"

"When glass must be cut in widths narrower than 27¾", it can be supplied only in multiples of the full corrugation or 2½"—viz. 25¼", 22¾", 20¼" and 17¾".

Standard light coverage

Lts.	Width	Lts.	Width	Lts.	Width	Lts.	Width
1	2′– 4¼″	26	61′– 2½″	51	120′– 0¾″	76	178′–11″
2	4′– 8½″	27	63′– 6¾″	52	122′– 5″	77	181′– 3¼″
3	7′– 0¾″	28	65′–11″	53	124′– 9¼″	78	183′– 7½″
4	9′– 5″	29	68′– 3¼″	54	127′– 1½″	79	185′–11¾″
5	11′– 9¼″	30	70′– 7½″	55	129′– 5¾″	80	188′– 4″
6	14′– 1½″	31	72′–11¾″	56	131′–10″	81	190′– 8¼″
7	16′– 5¾″	32	75′– 4″	57	134′– 2¼″	82	193′– 0½″
8	18′–10″	33	77′– 8¼″	58	136′– 6½″	83	195′– 4¾″
9	21′– 2¼″	34	80′– 0½″	59	138′–10¾″	84	197′– 9″
10	23′– 6½″	35	82′– 4¾″	60	141′– 3″	85	200′– 1¼″
11	25′–10¾″	36	84′– 9″	61	143′– 7¼″	86	202′– 5½″
12	28′– 3″	37	87′– 1¼″	62	145′–11½″	87	204′– 9¾″
13	30′– 7¼″	38	89′– 5½″	63	148′– 3¾″	88	207′– 2″
14	32′–11½″	39	91′– 9¾″	64	150′– 8″	89	209′– 6¼″
15	35′– 3¾″	40	94′– 2″	65	153′– 0¼″	90	211′–10½″
16	37′– 8″	41	96′– 6¼″	66	155′– 4½″	91	214′– 2¾″
17	40′– 0¼″	42	98′–10½″	67	157′– 8¾″	92	216′– 7″
18	42′– 4½″	43	101′– 2¾″	68	160′– 1″	93	218′–11¼″
19	44′– 8¾″	44	103′– 7″	69	162′– 5¼″	94	221′– 3½″
20	47′– 1″	45	105′–11¼″	70	164′– 9½″	95	223′– 7¾″
21	49′– 5¼″	46	108′– 3½″	71	167′– 1¾″	96	226′– 0″
22	51′– 9½″	47	110′– 7¾″	72	169′– 6″	97	228′– 4¼″
23	54′– 1¾″	48	113′– 0″	73	171′–10¼″	98	230′– 8½″
24	56′– 6″	49	115′– 4¼″	74	174′– 2½″	99	233′– 0¾″
25	58′–10¼″	50	117′– 8½″	75	176′– 6¾″	100	235′– 5″

SUGGESTED SPECIFICATIONS FOR INSTALLATION

All supporting steel construction and metal flashings shall be provided under separate contract. This contract shall include all labor, materials, equipment and services necessary for and reasonably incidental to the erection of White or Actinic ORIGINAL Corrugated Wire Glass. Standard fittings are to be specified as 3003-H16 Aluminum (.032″ thick), 18 oz. cold rolled copper or 24 gauge galvanized steel (copper bearing: painted with aluminum) as shown on the drawings. Before any work is executed, the contractor shall furnish the architect, engineers or purchasers with complete drawings conforming to the recommendations of the manufacturer. All erection shall be as prescribed in the approved drawings of the manufacturer.

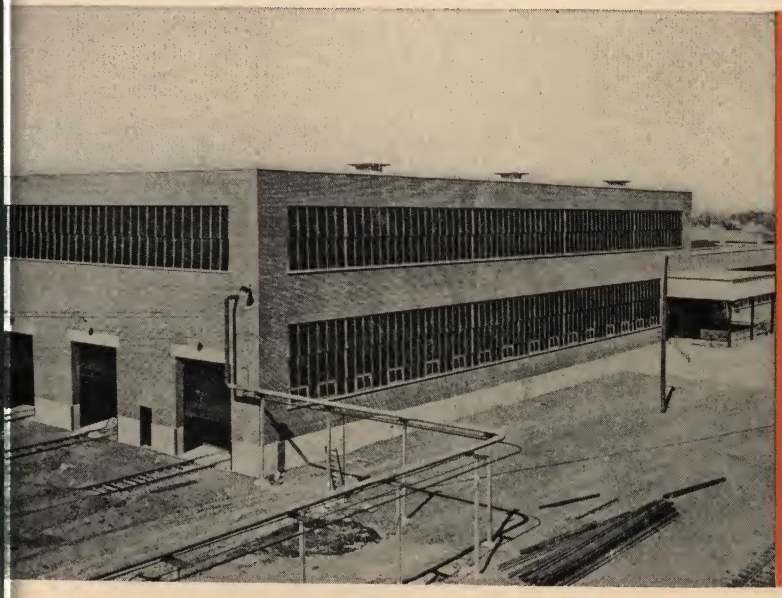
SUPPLEMENTARY SPECIFICATION NOTES

(a) No light of Corrugated Wire Glass shall exceed 27¾″ in width. No single light shall span more than 60″ clear opening without an intermediate support. On slopes of 60 degrees or greater from the horizontal, the maximum clear span should not exceed 96 inches.

(b) Lights of glass shall be laid edge to edge (not lapping) with ½″ spaces between the lights. The open joints so formed shall be covered with exterior metal cover caps and metal inner strips which conform to the corrugations of the glass. Exterior cover caps shall have an asphaltic lining. Caps and inner strips, to complete the joint, shall be bolted together by bolts passing through the caps and inner strips and between the lights of glass approximately 9″ c. to c.

(c) Where structural supports occur, clips, engaged by bolts passing through the cover caps, shall be used to hold the glass securely in place.

(d) Each light of glass shall have a firm, even bearing. Wherever any light of glass laps over other glass, it shall be cushioned with a sealing strip.



ailroad repair shop: Southern Railway, Chattanooga, Tenn.



hangar: A.C. Engineering Shop & Repair Docks, Sacramento, California

replace worn-out skylights with Pennsylvania corrugated wire glass

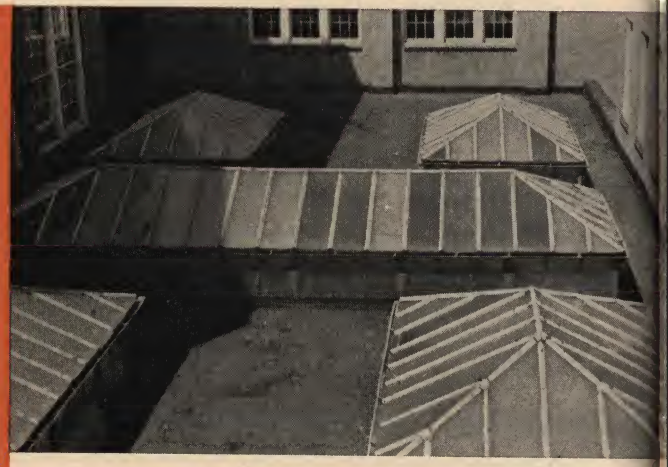
One of the strongest demonstrations of the satisfactory performance of Pennsylvania Corrugated Wire Glass Skylights is the increasing number of replacement jobs which the Company has been handling for many years. Such installations in all parts of the country have included the removal of all types of skylights of a variety of materials.

Reasons for replacements are varied; in some the flat glass previously used had become badly cracked, others where the glass was puttied in place involved a continuous maintenance expense as the putty dried out. On some the supports rusted away and on others the amount of supporting steel plus repairing of leaks with asphalt had so reduced the light within the building as to be of little value as a lighting source.

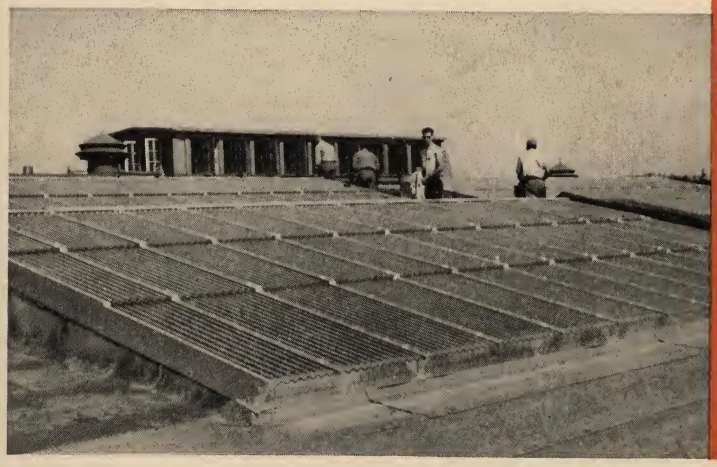
Replacing with Pennsylvania Wire Glass Skylights having wide glass sheets and aluminum construction not only reduced maintenance expense to a minimum but provided so much more useful light that the investment has been a most valuable, long-term morale builder for workmen within the building.



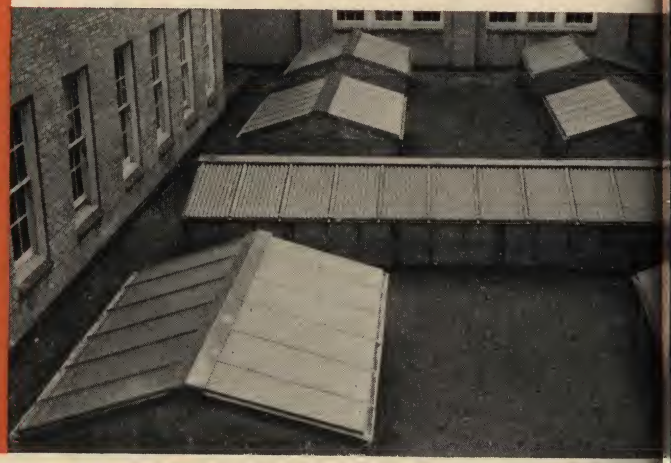
before: York Corporation, York, Penna. Flat glass skylights



before: Radnor High School, Wayne, Penna.



after: York Corporation, York, Penna.



after: Radnor High School, Wayne, Penna.

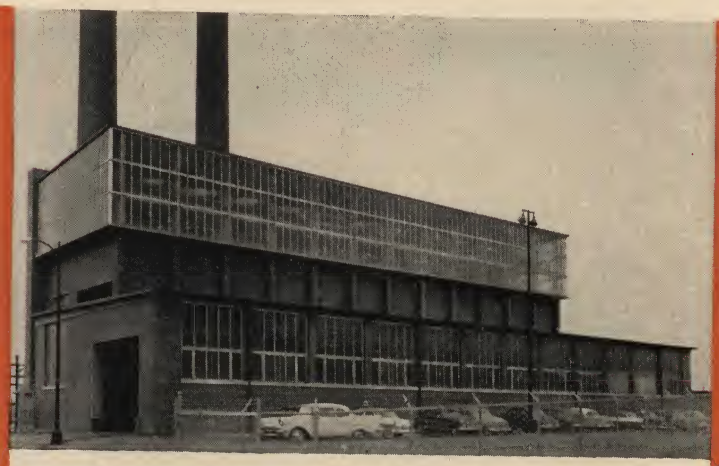
sidewalls and curtain walls with Pennsylvania corrugated wire glass

With the modern development of curtain wall construction for all types of buildings many designers have not realized that one of the earliest forms of this now popular feature was the sidewall of corrugated wire glass. For many years industrial plants of all kinds, pumping stations, armories, hangars, school gymnasiums and, in fact, all types of buildings have had sidewalls of glass. A few examples of buildings are shown below.

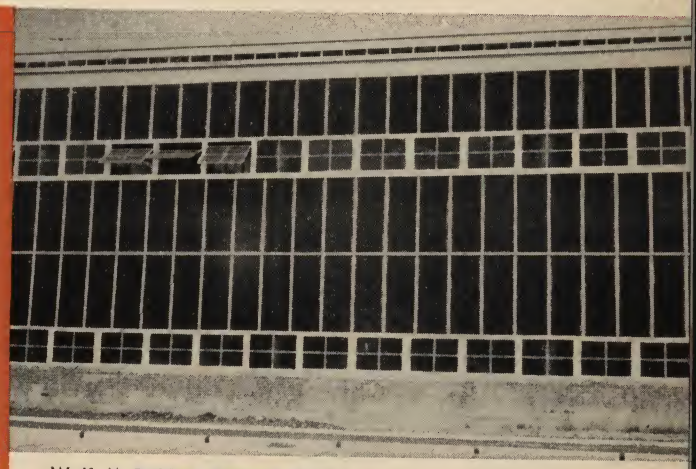
In addition to the advantage of glass as a light transmitting material in such structures, designers have found that the clean, vertical lines of corrugated wire glass harmonize with aluminum or other wall panels and assure symmetry and attractive appearance of the installation when completed.

Long experience with sidewalls of glass has given the Pennsylvania Wire Glass Company an invaluable background in this type of work. Manual on glass sidewalls on request.

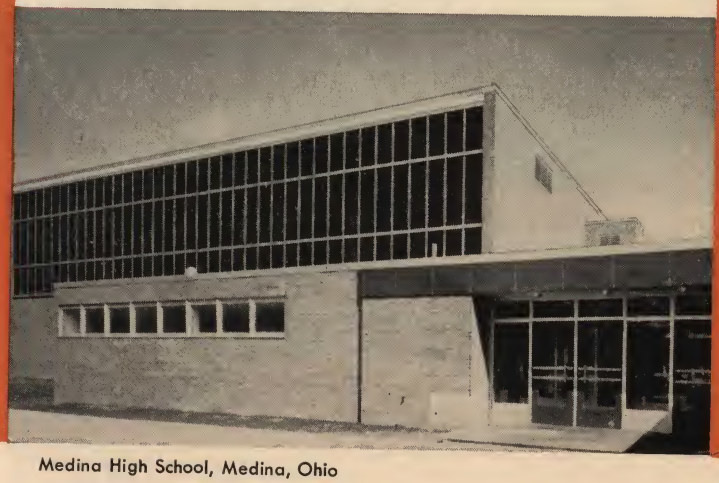
Standard methods of construction of sidewalls in masonry or corrugated siding were developed and have been proved satisfactory for many years. This experience is available to designers of buildings having curtain walls of any materials. A copy of the Pennsylvania Wire Glass manual "Glass Sidewalls" will be mailed on request.



Louisville Municipal Incinerator, Louisville, Ky.



W. K. M. Building, Houston, Texas



Medina High School, Medina, Ohio



Florida Power Corporation, Avon Park, Fla.

contemporary design calls for

A most versatile material, Corrugated Wire Glass has been used extensively in many locations other than skylights and sidewalls. Among these uses are interior partitions, display areas, residence and office windows, balcony or terrace railings, wind breaks and shelters and many others. A few are shown below and others will occur to the imaginative designer. A special booklet on these uses will be furnished on request.



balcony railing: Sherman Apartments, Evanston, Ill.

offices: Eastern Industrial Firm, Wilmington, Delaware



offices: another view of the Wilmington offices.



national users of Pennsylvania corrugated wire glass

Allis Chalmers Manufacturing Company
Bureau of Yards and Docks, U. S. Navy
Bethlehem Steel Company
Chesapeake & Ohio Railway Company
International Harvester Company
The Pennsylvania Railroad Company
SKF Industries, Inc.
and many others.

other Pennsylvania products

Corrugated Glass Without Wire

Actinic (Heat Intercepting and Glare Reducing Glass)

Hammered Glass, with and without wire

Hammered Actinic Glass, with and without wire

Penglass and Custom Round and Ridge Roof Ventilators

PENNSYLVANIA WIRE GLASS COMPANY

1612 Market Street, Philadelphia 3, Pa.

Representatives in Principal Cities

pittsburgh



That this is the "glass age" is impressively exemplified by the many ways in which Pittsburgh Glass was utilized in the Connecticut General Life Insurance Company Building. SPANDRELITE® was used in the curtain-wall spandrel. Openings feature SOLEX® and TWINDOW® for greater interior comfort. And Pittsburgh's Rough Plate Glass, Heavy Plate Glass, HERCULITE®, PITTCOMATIC® Automatic Door Openers, Paints, PC FOAMGLAS® and Copper Back Mirrors complete a truly "all-glass" structure. Architects: Skidmore, Owings & Merrill, New York City; General Contractor: Turner Construction Company, New York City.

Pittsburgh Plate Glass Company

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A.I.A. FILE NO. 26-A-2–1960

in this catalog...

you will find illustrated and described the major glass products of the Pittsburgh Plate Glass Company. For the greatest convenience to you, each of the products is clearly identified and, so far as possible, kept separated by pages or segments of a page.

In addition to a number of diagrams and sketches, which serve to underscore various features of the products discussed, you will find photographs of actual installations. The latter, we believe, will offer you typical examples of the ability of the particular Pittsburgh Glass product to complement and enrich practically any architectural scheme.

For more detailed information, we suggest that you refer to the specific Sweet's Catalog Files mentioned under the various categories in this catalog. Also, we shall be pleased to have you consult with the *Pittsburgh* Architectural Representative or branch office nearest you, or you may address any inquiry direct to Pittsburgh Plate Glass Company, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pennsylvania.

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check list of pittsburgh glass products

PRODUCT	QUALITIES	THICKNESSES	RECOMMENDED MAX. SIZES	WEIGHTS PER SQ. FT.	STRENGTH	COLORS	FINISH
Regular Polished Plate Glass †	Silvering Mirror Glazing Glazing	⅛″ ¼″	Standard: ⅛″ 76″x128″ (Over 7 sq. ft. not recommended for ext. glazing); ¼″ 130″x218″ Special: 130″x286″	⅛″ 1.64 lbs. ¼″ 3.29 lbs.	Tension 6500 lbs. (″) Compression 36,000 lbs. (″) Modulus Elasticity 10,000,000 lbs. (″)	Clear	Ground and Polished
Polished Heavy Plate Glass †	Commercial Selected	5/16″ ⅜″ ½″ ¾″ 1″ 1¼″	5/16″ 130″x218″ ⅜″ 130″x218″ ½″ 130″x218″ ¾″ 94″x130″ 1″ 74″x148″ 1¼″ 74″x148″ 130″x286″ 130″x286″ Contact PPG	5/16″ 4.06 lbs. ⅜″ 4.93 lbs. ½″ 6.58 lbs. ¾″ 9.67 lbs. 9.67 lbs. 1″ 13.16 lbs. 1¼″ 16.45 lbs.	In direct proportion to the square of the thickness	Clear	Ground and Polished
Solex® Heat-Absorbing Plate Glass †	Glazing only	¼″ ⅜″	¼″ 128″x216″ ⅜″ 126″x214″ 130″x286″ 130″x286″	3.29 lbs.	Same as regular Plate Glass	Bluish Green	Ground and Polished
Solargray® Plate Glass †	Glazing	¼″ ⅜″	¼″ 128″x216″ ⅜″ 126″x214″ 130″x286″ 130″x286″	3.29 lbs.	Same as regular Plate Glass	Gray	Ground and Polished
Twindow®—Metal Edge	Plate Glass—Glazing Window Glass—″A″ Rolled Glass—Standard	Double-Glazed Unit: Glass—⅛″, 3/16″, ¼″ Air Space ¼″ or ½″	Double-Glazed Unit: ⅛″—12 sq. ft.; 3/16″—22 sq. ft.; ¼″—70 sq. ft.; 50 sq. ft. (Solex); 50 sq. ft. (Solargray)	Double-Glazed Unit: ⅛″—3½ lbs.; ¼″—7 lbs.	Write for details	Dependent on glass used	Same as glass used
Twindow—Glass Edge	DSA Pennvernon® Window Glass	Double-Glazed Unit: 3/16″ air space; ⅛″ glass; 7/16″ over-all	12 sq. ft.	3½ lbs.		Clear	Fire-finished
Duplate® Safety Plate Glass Solex or Clear		¼″	60x90	3.19 lbs.	Write for details	Bluish Green Clear	Ground and Polished
Duolite® Safety Sheet Glass Solex or Clear		SS & SS 7/32″ Standard 15/64″ DS & DS 17/64″	36x60 or sizes not to exceed 15 sq. ft.	2.42 lbs. 2.86 lbs. 3.24 lbs.	Write for details	Bluish Green Clear	Fire-finished
Multiplate Bullet-Resisting Plate Glass		¾″ ⅞″ 1″ 1 3/16″ 1 5/16″ 1¾″ 2″ 2½″ 3″	60x90	9.71 lbs. 11.36 lbs. 13.01 lbs. 14.88 lbs. 20.04 lbs. 22.45 lbs. 27.97 lbs. 33.03 lbs. 39.63 lbs.	Write for details	Bluish Green Clear	Ground and Polished
Herculite® Plate Glass	Same as glass before tempering	¼″ ⅜″, ½″, ¾″ 1″, 1¼″	¼″—72x108 ⅜″, ½″, ¾″—77x110 1″, 1¼″—74x110	Same as glass before tempering	Approx. 4 times that of glass of equal thickness which has not been tempered	Same as glass before tempering	Same as glass before tempering
Herculite Doors	Selected	¾″ Doors ¾″ Sidelights ½″ Doors ½″ Sidelights	48x108 72x108 42x96 72x108	Avg. 9.67 lbs. (or 6.5 lbs.) plus hardware	Approx. 4 times that of glass which has not been tempered	Clear	Ground and Polished
Carrara® Structural Glass	Selected	Black, White 11/32″, 7/16″, ¾″, ⅞″, 1¼″ Black also in ¼″ Ivory, Gray, Tranquil Green 11/32″, 7/16″, ⅞″, 1¼″ Forest Green, Dusk Blue, Wine, Rembrandt Blue, Shell Pink 11/32″ only	77x130	¼″ 3.29 lbs. 11/32″ 4.5 lbs. 7/16″ 5.76 lbs. ¾″ 9.87 lbs.	Approx. same as regular Plate Glass	Tranquil Green, Ivory, White, Black, Wine, Dusk Blue, Rembrandt Blue, Gray, Shell Pink and Forest Green (All Opaque)	Ground and Polished one side. ¼″ black, also polished both sides
Pittsburgh Mirrors Regular Copper Back Structural	Silvering Mirror Glazing	Fabricated from any thickness of glass	Copper Back and Structural 74x140	Approx. same as Plate Glass	Approx. same as Plate Glass	Plain, Bluish Green	Silver, gold or gunmetal backing
Tapestry® Glass		7/32″	60x144	2.89 lbs.	Equal to or greater than that of regular Plate Glass	Translucent Semi-Opaque	Plain Polished
Rough Plate Glass †		21/64″ ½″ 5/8″ ⅞″ 1⅛″ 1⅜″	Standard: 21/64″ 130″x218″; ½″ 130″x218″; 5/8″ 130″x218″; ⅞″ 94″x130″; 1⅛″ 74″x148″; 1⅜″ 74″x148″ Special: 130″x286″ 130″x286″ 130″x286″ Contact PPG	Approx. same as Plate Glass	Approx. same as Plate Glass	Translucent	Plain
Pennvernon® Window Glass	Photo A, B Picture A, B Single Strength Same Dbl. Strength Same 3/16″ Heavy Sheet A, B 7/32″ Heavy Sheet A, B Solex 7/32″ Greenhouse	.058″ to .068″ 1/16″ (.070″ to .080″) 3/32″ (.087″ to .095″) ⅛″ (.118″ to .133″) 3/16″ (.187″ to .200″) 7/32″ (.212″ to .225″) 7/32″ (.212″ to .225″) ⅛″ (.118″ to .133″)	3′0″x4′2″ 3′0″x4′2″ 3′4″x4′2″ 5′0″x6′8″ 10′0″x6′4″ 10′0″x6′4″ 50 sq. ft. 16x18, 16x24, 18x20, 20x24	12 to 14 oz. 16 19 26 40 45 45 26	Substantially the same as Plate Glass of equal thickness	Clear Bluish Green	Fire-finished
Pennvernon Graylite Glass	Graylite ″61″ Heavy Sheet Graylite ″56″ Heavy Sheet Graylite ″31″ Window Glass Graylite ″14″ Heavy Sheet	3/16″ 7/32″ ⅛″ 7/32″	120″x84″ 120″x84″ 60″x84″ 60″x84″	40 oz. 45 oz. 26 oz. 45 oz.	Substantially the same as Plate Glass of equal thickness	Neutral	Fire-finished
Spandrelite®		Dependent upon surface finish	72″ x 144″	Dependent upon thickness of glass used	Approx. 2 times that of glass of equal thickness that has not been heat strengthened	Sixteen Standard Colors Ranging from Horizon to Graphite. Special Colors on approved request. (All Opaque)	Polished and Twill
PC Glass Blocks*	Selected	3⅞″ (hollow)	Actual sizes: **5¾″x5¾″ **7¾″x7¾″ 11¾″x11¾″ **3¾″x11¾″			Clear, **Available in twelve Standard Colors	Moulded
Foamglas®*	Rigid, lightweight, incombustible, long-lasting, cellular glass insulation	1¾″ 2″ 2½″ 3″ 4″	12″x18″ 12″x18″ 18″x24″ 18″x24″ 18″x24″	9 lbs. per cu. ft.	Send for Foamglas® Booklet		

*Manufactured by Pittsburgh Corning Corporation. Distributed by Pittsburgh Plate Glass Company.
†Untrimmed—factory edge.

regular polished plate glass

Regular Plate Glass is transparent, flat glass having plane-polished surfaces. It is made by casting and rolling large sheets which are then ground and polished to true, flat surfaces having great brilliance and high reflectivity. Since the two surfaces of the glass form true and parallel planes, Plate Glass affords undistorted vision or reflection from any angle. Plate Glass is the finest material available for exterior and interior glazing. It is ideal for commercial, industrial and public buildings, heightening their architectural beauty and adding that distinctive touch which increases the sales and rental value of the structure.



Polished Plate Glass was used in these large areas on the first floor loan section of the Union Federal Savings & Loan Association, Baton Rouge, Louisiana. Here a wall of Plate Glass brings in the outside with its interesting patio. Architect: A. Hays Town, Baton Rouge, Louisiana.

This Plate Glass is available in three qualities: *Silvering* Quality, *Mirror Glazing* Quality and *Glazing* Quality. It should be evident that small lights of Plate Glass can be selected to have fewer imperfections than larger lights. For this reason the grading specifications are less stringent as the size of the sheet increases.

Silvering Quality is invariably used where the highest standard is required. This Quality is rarely recommended for glazing purposes in sizes of more than 20 square feet.

Mirror Glazing Quality may be specified where absolute perfection is not required. It is exceptionally free from defects.

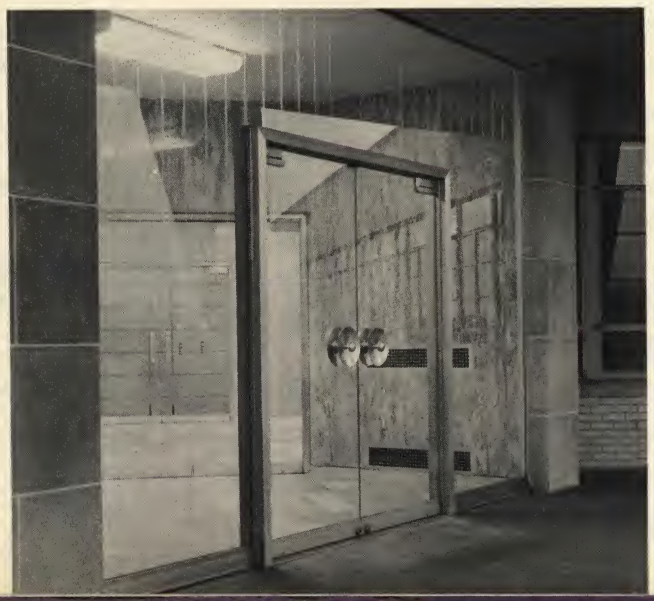
Glazing Quality represents the usual selection of Plate Glass which is specified where the ordinary glazing installation is required. (*Not* for Mirrors.)

Pittsburgh Polished Plate Glass is available in a superior *Twin-Ground* Plate Glass made by a special new twin-grinding process at the newest and most modern glass plant in the world.

See "Check List" on page 3 for additional information on Regular Plate Glass.

heavy polished plate glass

Its strength, true flat surfaces, great brilliance and high reflectivity, together with its clarity which affords excellent vision, make Heavy Plate Glass adaptable to many uses. In commercial, industrial and public buildings, it has proved its value where wind loads and sound reduction are a problem. In addition to utilization in large, unobstructed exposures, Heavy Plate Glass is widely used for book shelves, decorative panels, partitions, shower bath skylights, telephone stall partitions, theater marquees, valances, lighting fixtures, radio sound control rooms, refrigerator doors, showcase tops, soda fountain counters and many similar applications.



Heavy Plate Glass is the designation given Plate Glass in thicknesses of 5/16″ to 1¼″. Normally, it is furnished in "Commercial Quality" only. However, it may be especially selected to meet some specific purpose. For detailed specifications, see "Check List" on page 3.

In this new building of the American Can Company, Lemoyne, Pa., Pittsburgh's Heavy Plate Glass is used in the areas surrounding the HERCULITE® Doors. This is one of the most prominent uses of this type of glass, for it has exceptional strength and affords utmost clarity of vision. Note the mitered lines in this Heavy Plate Glass. Architects: Engineering Department, American Can Company; General Contractor: Turner Construction Company, New York City.

wind resistance chart

Maximum glass sizes** of various thicknesses for glazing vertical windows supported on four sides

SQUARE FEET OF AREA

Glass Thickness	†† SS-.087"	†† DS-.118"	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8" up to 1"	1 1/4"
30 Mile Wind	35 sq. ft.†	64.5†	72†	162	*198	*198				
40 Mile Wind	17.5†	32.25	36†	81	144	*198	*240			
55 Mile Wind	11.6	21.5†	24†	54	96	150	216			
65 Mile Wind	8.7	16.1†	18†	41	72	112	162	*240		
80 Mile Wind	5.8	10.85	12	27	48	75	108	192		
100 Mile Wind	3.5	6.45	7	16	29	45	65	115		
120 Mile Wind	2.5	4.6	5	11	20	32	46	82	*80	*74

†"SS," "DS" and 1/8" glass, because of flexibility, should never be used in areas exceeding 12 square feet, and for the sake of appearance, areas used should not exceed 7 square feet.

*Maximum Size Available.

**These sizes are based on practical experience and are entirely adequate. They should not be referred to the "Chart of Safe Loads for Plate Glass" since in actual use, due to intermittent loading, the actual factor of safety is several times the apparent values.

††"SS" means Single Strength; "DS" means Double Strength; both apply to Window Glass.

tapestry® and rough plate glass

Tapestry Glass

A translucent, semi-opaque, rough-figured glass, TAPESTRY Glass is ideally suited for such uses as office partitions, room dividers and similar applications where the architect desires to glaze so as to admit light but obstruct the view. Objects placed quite close to the surface of TAPESTRY Glass can be seen through it almost as plainly as through transparent glass. However, objects decrease in visibility and eventually become entirely shadowed and obscured when they are removed from close proximity to the glass.

TAPESTRY Glass is furnished with both surfaces in tapestry finish, or one in TAPESTRY finish and the other polished. It can be decorated by sand-blasting, chipping or mitering. See "Check List" on page 3 for further details.

Rough Plate Glass

This is glass with a knurled surface pattern which is not transparent, but has a translucent quality. Under normal conditions, objects placed more than a few feet away from the glass will appear as vague images. Objects placed closer than this may be seen clearly enough to identify, but without detail. Its uses include partitions, obscured windows and door panels, skylights (tempered), table tops, roofs (tempered), shelves, modern furniture, trays.



Effective use of Rough Plate Glass is evident in the interior office partitions of Skidmore, Owings & Merrill, New York City. Rough Plate Glass permits light to enter, but assures privacy. Architects: Skidmore, Owings & Merrill, New York City.

solex® heat-absorbing glass



SOLEX Plate Glass absorbs heat without significant interference with light transmission. Although it transmits from 70% to 75% of the sun's total light, it admits less than 45% of the total solar heat. (Clear glass admits 85% of the sun's total heat and light.) Thus, SOLEX greatly reduces the heat entering a building through windows and skylights. Interiors are more comfortable, and persons sitting near SOLEX windows experience less discomfort from solar heat. The glare resulting from high light intensity is considerably lessened.

Wave lengths of visible light vary from 400 to 680 millimicrons. Below this range, ultraviolet occurs. From 700 to 2800 millimicrons, infrared or heat rays occur. SOLEX transmits visible light while absorbing a large portion of the infrared.

SOLEX has a faint bluish-green tint. It tends to make other colors appear true. This gives SOLEX a natural light

solargray® plate glass



A neutral gray Plate Glass, SOLARGRAY possesses essentially the same solar heat-absorbing ability as SOLEX. However, the visible light transmission of SOLARGRAY has been made substantially lower than that of SOLEX in order to provide a greater degree of brightness attenuation. SOLARGRAY meets the requirements as defined in Federal Specification DD-451a (December 19, 1949) for heat-absorbing glass: ". . . one whose polished specimens ¼" thick shall have a luminous transmittance of not less than 0.65 (65%) and a *radiant transmittance for energy* from the sun of not more than 0.50 (50%) . . ."

Because of these properties, SOLARGRAY is recommended for installation where brightness and glare control are desired. Furthermore, it permits this control without sacri-

At Galveston Wharves, Galveston, Texas, SOLARGRAY Plate Glass surrounds the clear HERCULITE® Tempered Plate Glass Doors. This results in an attractive entrance, as well as a functional one. Like SOLEX, this glass reduces the annoying heat and brightness of the sun. Architect: R. R. Rapp, A.I.A., Galveston, Texas.

GLAZING INSTRUCTIONS—HEAT-ABSORBING PLATE GLASS

Any light of annealed glass which absorbs more than 40% of the incident solar energy must be given special care in cutting and installation to avoid temperature-stress breakage. The ability of annealed Heat-Absorbing Plate Glass to resist solar energy breakage is primarily re-

quality which corresponds to artificial light from advertised daylight bulbs. It is neither depressing nor glaring.

In southern and western exposures, SOLEX has many advantages because of its low rate of heat transmission. It is highly recommended for schools, residences, hotels, plants and office buildings. It is ideal where delicate electronic instruments and sensitive manufacturing processes are involved.

21/64" Heavy Rough SOLEX Plate Glass is also available.

SOLEX Green-Tint, Heat-Absorbing, Glare-Reducing Glass was prominently utilized in the large glass areas which form an important part of the curtain wall of the administrative offices of the Ford Motor Company in Dearborn, Michigan. Architects & Engineers: Skidmore, Owings & Merrill, New York City.

SOLAR ENERGY TRANSMISSION AT NORMAL INCIDENCE FOR ¼" SOLEX

	Pct.
Luminous (Visible) Transmission of Solar Light	73.0
Infrared Transmission	20.0
Direct Transmission of Total Solar Energy	44.0
Solar Energy Reflected	5.1
Sum	49.1
Absorbed (by difference)	50.9
Total	100.0
Total Direct Transmission	44.0
Re-radiation and Conduction of Absorbed Energy to Inside of Enclosure as % of Total Incident	25.45

See "Check List" on page 3 for additional data.

ficing heat-absorbing ability or creating color problems.

This Plate Glass has wide application in factories, hospitals, schools, apartments, private residences . . . in industrial, commercial and public buildings of all kinds.

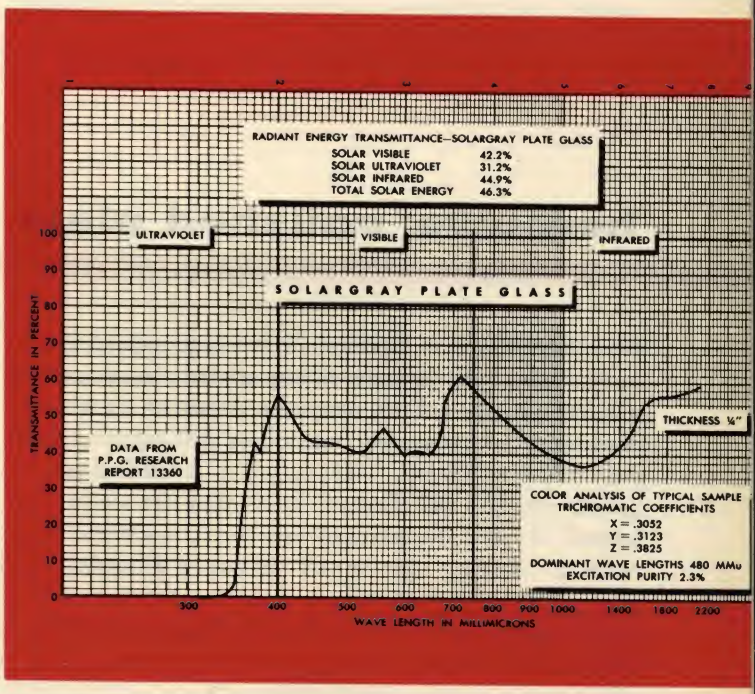
It is not recommended where high light transmission is desired, as, for example, in merchandise display windows, nor in airport control towers or in "sky-rooms" like the "Top of the Mark" where the ability of visitors or workers to see out at night is an important requirement.

The properties of SOLARGRAY Plate Glass are approximately the same as for SOLEX, except for light transmission as indicated in the table below.

21/64" Heavy Rough SOLARGRAY Plate Glass is also available.

	¼"	⅜"
Total visible solar light	42%	27%
Total solar energy	46%	34%
Total solar infrared	45%	34%
Total solar ultraviolet	31%	22%

See "Check List" on page 3 for maximum sizes and additional specifications.



(SOLEX Plate Glass and SOLARGRAY Plate Glass)

lated to edge strength. Clean-cut edges are the strongest attainable. Glazing details, materials and procedures must protect Heat-Absorbing Glass edges against damage during installation and in service. For detailed glazing instructions, call your Pittsburgh Plate Glass distributor.

pittsburgh mirrors

There is a quality Pittsburgh Mirror for every architectural need, whether for structural use in a building or purely for decoration.

Pittsburgh Mirrors are made from superior *Twin-Ground* Plate Glass, produced by a special new *Pittsburgh* twin-grinding process. The use of this glass results in Mirrors with distortion-free reflection—the most accurate image a modern Mirror can give.

All Pittsburgh Mirrors are available in clear *Twin-Ground* Plate Glass. For achievement of striking or unusual effects, Pittsburgh Mirrors may also be obtained in SOLEX® Plate Glass, which gives them a cool aquamarine color. Both types of Mirrors are consistently high in quality and offer superior reflectivity.

Copper Back Mirrors

Pittsburgh Copper Back Mirrors were developed to meet the demand for Mirrors which have high resistance to deterioration. They should be used for the most effective protection against the usual effects of varying climatic and atmospheric conditions.

These Mirrors are manufactured with a layer of copper electroplated over a heavy coat of silver. With the special copper coating to protect them, the Mirrors retain their beauty and usefulness year after year—practically eliminating the need for replacements.

When Pittsburgh Mirrors are to be "built in," they should be specially fabricated for use with mastic. These structural Mirrors differ from other types in that they have an additional protective coating of copper over the regular silver backing.

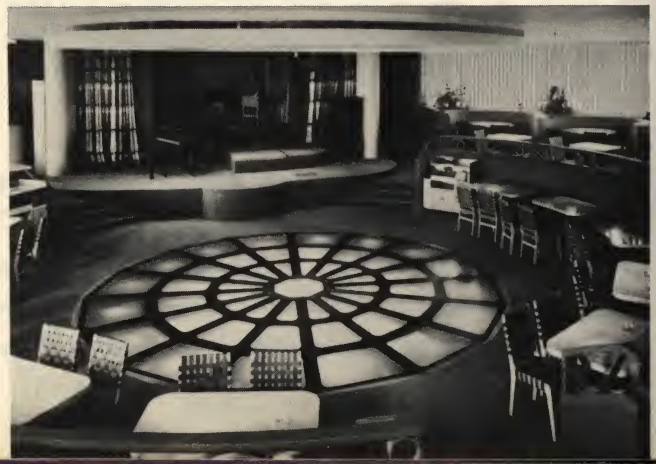


A handsome structural Mirror, made from Pittsburgh Plate Glass, adds to the charm of any room—whether in a home like this or in a commercial, industrial or other type of establishment. Mirrors help give the illusion of greater spaciousness.

herculite® polished plate glass

This Plate Glass is Polished Plate Glass, subjected to a special tempering process. Wherever mechanical strength and comparatively light weight are essential, or wherever temperatures between 120 degrees and 550 degrees Fahrenheit are encountered, HERCULITE is recommended. Its greater strength will support four times the weight supported by ordinary glass. It will bend four times as far without breaking. Its impact resistance is eight times greater. HERCULITE also resists shocks and impacts as well at 15 degrees below zero F. as at ordinary temperatures. When, under terrific impact, HERCULITE does shatter, it disintegrates into innumerable blunt-edged, small fragments and not into sharp fragments like ordinary glass.

Where strength and safety are important, the uses of HERCULITE are almost limitless. It is exceptionally applicable for aquaria, cell doors, deck lights, doors, fire screens, flooring, gas cooker doors, glass-bottom boats, gauge guards, kitchen equipment, laboratory equipment, partitions, port lights, road traffic signs, shelves, showcases, sight glasses, table and dresser tops, underwater lights, to name but a few. See "Check List" on page 3 for additional characteristics.



Pittsburgh's HERCULITE can be used for many practical and decorative applications. As shown here in The Club, Birmingham, Ala., dance floors made of HERCULITE set in unique geometric patterns have a smooth surface for pleasant dancing. This glass is easily cleaned and remains eye-appealing at all times.
Architects: Warren, Knight and Davis, Birmingham, Ala.

For further details on Pittsburgh Mirrors, see "Check List" on page 3.

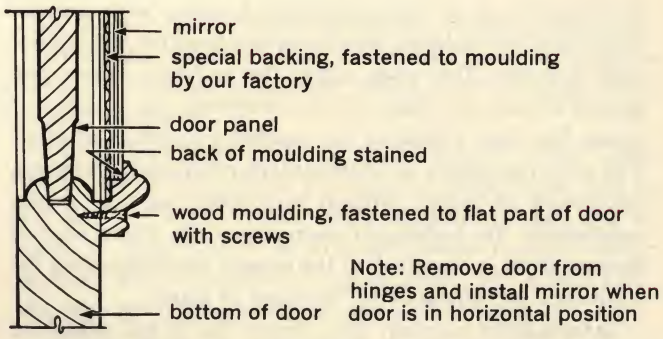
Pittsburgh Full-Length Door Mirrors

There is a great demand for these easily installed Door Mirrors in the home. Many architects now include them in plans for bedrooms, bathrooms and entranceways.

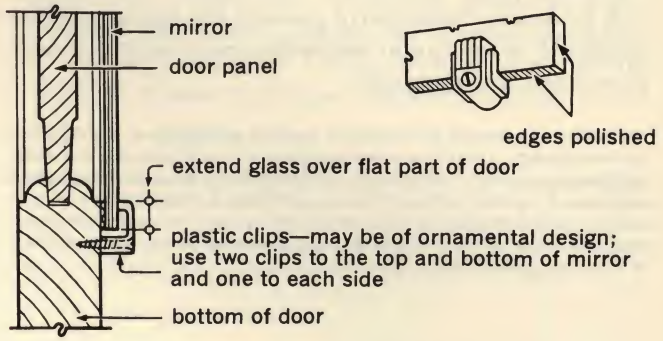
To determine which of the five standard Door Mirror sizes is needed, simply measure the distance from edge to edge of the door itself. This over-all width determines which size Mirror will cover the recessed door panel.

DOOR WIDTH	MIRROR SIZE venetian or framed
2′	16″ x 68″
2′2″	18″ x 68″
2′4″	20″ x 68″
2′6″	22″ x 68″
2′8″	24″ x 68″

NOTE: These Mirrors are all 68″ high and are made to fit correctly all standard interior residential doors of 6′8″ (80″) in height. Mirrors for doors other than standard heights can be fabricated by your nearest Pittsburgh Plate Glass Company branch or distributor.



Installation of factory-framed mirror on wood door



Installation of venetian mirror on wood door

carrara® structural glass

CARRARA Structural Glass is made by the same process as quality Plate Glass. Metallic oxides provides opacity and color. It has the same general characteristics as Plate Glass. Thus, it is impervious to moisture, stain, fumes, gases, chemicals and pencil marks. The polished surfaces of CARRARA have the smoothness, brilliance and substantial optical flatness of Polished Plate Glass. It can be heat-strengthened or fully tempered.

In building construction, interior decoration, furnishing and industrial production, CARRARA Structural Glass has many uses. It has found unlimited applications in the spandrel area of buildings of all types. It has been widely utilized in hospital operating and X-ray rooms, as well as in industrial plants and commercial establishments, such as restaurants, hotels, and department and retail stores of every kind. CARRARA is available in ten colors, including black and white, in thicknesses, depending on color, from ¼″ to 1¼″.

For further details, see the "Check List" on page 3, and for complete information, see Section 13e in Sweet's Architectural File.



Forest Green Rough CARRARA spandrels, together with TWINDOW® Insulating Glass, Polished Plate Glass and PENNVERNON® Window Glass are the elements that form this complete curtain-wall system. The structure houses The Cleveland Institute of Art in Cleveland, Ohio. Architects: Garfield, Harris, Schafer, Flynn & Williams, Cleveland, Ohio.

spandrelite® glass in color

SPANDRELITE is a heat-strengthened glass, with ceramic color fused to the back, specifically designed for the curtain-wall spandrel. This glass offers the architect a new and greater latitude in design. For in SPANDRELITE, a galaxy of colors has been added to the timeless properties of glass. The attractive colors of SPANDRELITE retain their freshness, impression of depth, original brightness and true shades indefinitely. In building construction, the color side of SPANDRELITE is mounted to the interior which provides the additional protection of ¼″ or more of glass.

SPANDRELITE is *strong*. This means that it will withstand impact and a wide range of temperature variations, even within one piece.

It is *durable*. SPANDRELITE provides the ageless qualities of glass. It is resistant to weathering and corrosion, is non-porous and non-absorbent.

It is *economical*. It may be installed in the same manner as regular glass, and it is easily cleaned.

This glass is recommended as facing material not only for spandrels but also for all opaque surfaces of glass-clad



An excellent example of functional modern architecture, the City Hall in New Orleans, Louisiana, makes extensive use of glass for the vision and spandrel areas. Pittsburgh's SPANDRELITE Glass in Color adds a new-found beauty to the exterior, provides a "glass skin" that is exceptionally strong, durable and weather and corrosion-resistant. Architects: Goldstein, Parham & Labouisse, and Favrot, Reed, Mathes & Bergman, New Orleans, La.

pennvernon® window glass

This is window glass at its best—high-quality glass with an unusually brilliant, unmarred finish on both sides of the sheet. PENNVERNON is distinguished by remarkable permanent transparency, clarity, and clear, true vision, accurately transmitting colors of objects seen through it. Manufactured by a special process, it is drawn vertically and held to a flat surface from molten state to finished sheet. No rolls or foreign substances touch the surface of the glass until it has cooled sufficiently to be beyond injury.

Much time, money and research have been devoted to reducing the effects of wave and distortion on the visibility and appearance of PENNVERNON. Because the glass is drawn vertically, under controlled conditions, wave is reduced to a minimum and runs in a straight line. For best visibility and appearance, PENNVERNON should be glazed with the wave running horizontally. When PENNVERNON is ordered, list the horizontal dimension first; for a 40″ wide by 20″ high sash, order glass 40″ x 20″ instead of 20″ x 40″. The factory will then cut to specification and mark the box accordingly, so the wave direction can be kept parallel to the ground when openings are glazed. See "Check List" on page 3 for further details.

PENNVERNON 7/32″ SOLEX® Heavy Sheet Glass should be used when it is desired to reduce heat and glare transmitted by regular heavy sheet glass. It eliminates almost two-thirds of the ultraviolet rays of sunlight which cause fading of fabric colors; reduces sunlight glare to approximately 75%; absorbs more than 50% of the total sunlight heat; conforms in every way to Federal Specifications No. DD-G-451a.

Classification	Qualities Available	Approx. Thickness*	Wts. Per Sq. Ft.	Maximum Size
Photo	A, B	.058″ to .068″	12 to 14	3′0″ x 4′2″
Picture	A, B	1/16″ (.070″ to .080″)	16	3′0″ x 4′2″
Single Strength	Same	3/32″ (.087″ to .095″)	19	3′4″ x 4′2″
Double Strength	Same	1/8″ (.118″ to .133″)	26	5′0″ x 6′8″
3/16″ Heavy Sheet	A, B	3/16″ (.187″ to .200″)	40	10′0″ x 6′4″
7/32″ Heavy Sheet	A, B	7/32″ (.212″ to .225″)	45	10′0″ x 6′4″
Solex 7/32″		7/32″ (.212″ to .225″)	45	8′4″ x 6′4″
Greenhouse	Greenhouse	1/8″ (.118″ to .133″)	26	16x18, 16x24, 18x20, 20x24

*to nearest common fraction

buildings. It comes in Polished or Twill finishes.

Since SPANDRELITE is available in heat-strengthened only, it should not be cut after firing. It has approximately twice the impact and thermal shock resistance of the annealed base glass. Other physical properties, except light transmission and degree of flatness, are essentially the same as those of the base glass. See "Check List" on page 3 for further details.



Eighteen standard colors are available in ¼" Plate Glass. These colors range from Horizon to Graphite, as well as Black and White. A wide range of custom colors can be made to specification. As in color selection, other surface textures will be available to specification. See "Check List" on page 3 for maximum sizes and additional data.

NOTE: With the development of the PITTCO® 82-X bar framing members, architects now have a *complete* system of glass-clad curtain-wall construction from *one* source: Pittsburgh Plate Glass Company. For complete information on *Pittsburgh Glass-Clad* Curtain-Wall Systems, see our catalog in section 3e of Sweet's Architectural File.

The new addition to Our Lady of the Lake School, Seattle, Washington, was designed with a "wall of glass" of SPANDRELITE in combination with PENNVERNON Heavy Sheet Glass. The result is a structure of striking appearance and unrestricted view of the exterior. Architect: Roger Gotteland, A.I.A. and Associates, Seattle, Washington.

pennvernon® graylite™ glass

In answer to architects' requests, a new sheet glass product has been developed to meet the need for glass to help control light environment. PENNVERNON GRAYLITE Glass is the result of a long-range research program to provide economical brightness control for building construction wherever glare is a problem. It accomplishes this, in varying degrees, by reducing the amount of visible light transmitted through the windows.

PENNVERNON GRAYLITE Heavy Sheet Glass and Window Glass maintain the highest standards of recognized PENNVERNON quality. They have a pleasing neutral color which is completely undetectable to building occupants under most circumstances. This means that architects have complete freedom of choice when planning the interior decorating schemes of buildings where PENNVERNON GRAYLITE Glass is used.

	Thickness	Maximum Size	Weight Per Sq. Ft.	Color	Visible Light Transmittance	Radiant Energy Transmittance
PENNVERNON GRAYLITE "61" Heavy Sheet Glass	3/16"	120" x 84"	40 oz.	Neutral	61%	74%
PENNVERNON GRAYLITE "56" Heavy Sheet Glass	7/32"	120" x 84"	45 oz.	Neutral	56%	71%
PENNVERNON GRAYLITE "31" Window Glass	1/8"	60" x 84"	26 oz.	Neutral	31%	59%
PENNVERNON GRAYLITE "14" Heavy Sheet Glass	7/32"	60" x 84"	45 oz.	Neutral	14%	45%

twindow® insulating glass

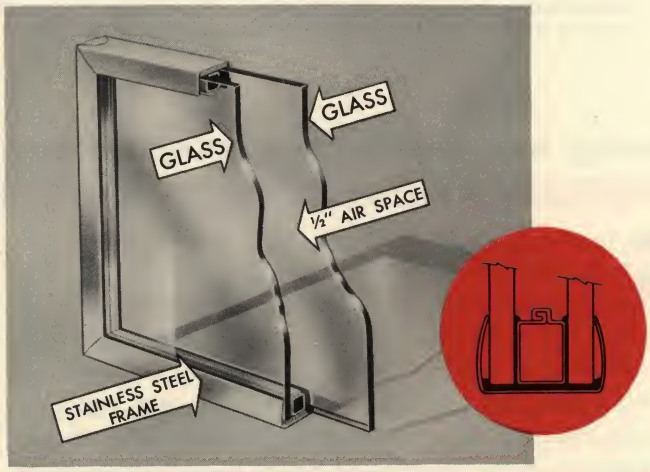
TWINDOW Insulating Glass has proved its many advantages in thousands of residential, commercial, industrial and public buildings throughout the United States. This *twin-glass*-air-space sandwich, applicable to any window of a house or commercial building, combines the thermal insulation of storm windows with the prime window as a single unit . . . installs like a single piece of glass . . . cleans like a single pane. No storm windows are necessary, because it is "storm sash" in permanent form. The insulating air space works year-round, reducing heat loss during the heating season and heat gain during the air-conditioning season. Only about half as much heat is lost or gained through TWINDOW as through single glazed windows.

Thus, windows glazed with TWINDOW Insulating Glass reduce heating and cooling costs. By reducing the load smaller capacity heating-cooling equipment may be adequate and cost less to operate too.

TWINDOW's insulation reduces the tendency for condensation to form on the room side glass surface, and unless conditions are unusually severe, window frost will not form. TWINDOW reduces cold downdrafts at windows, cuts down the "cold shoulder" effect, helps to maintain uniform temperatures, thereby adding to comfort.

(Right)
TWINDOW units helped to achieve impressive originality in the designing of the Irwin Union Bank and Trust Company Building, in Columbus, Indiana. These window units, with insulation built in, were used for all exterior glazing. Architects: Eero Saarinen & Associates, Bloomfield Hills, Michigan.

(Extreme right)
In homes of all kinds, TWINDOW Insulating Glass brings the beauties of the outdoors indoors; keeps rooms more comfortable winter and summer; eliminates the need for storm windows; saves on fuel bills. Architect: George B. Savage, Grand Rapids, Michigan. Builder: Richard D. Brooks, Grand Rapids, Michigan.

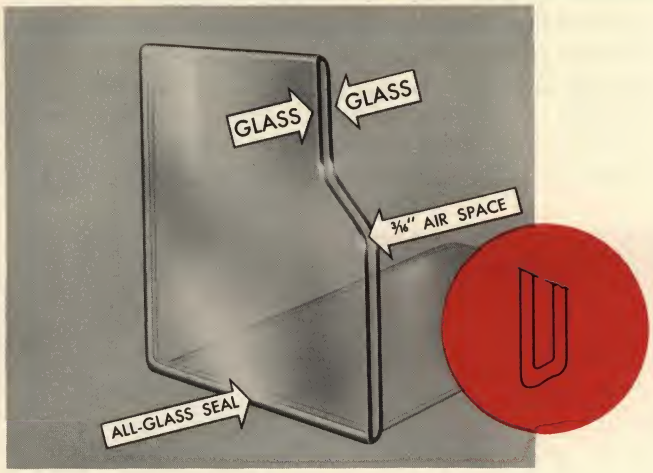


two types of twindow

metal edge

This type is designed primarily for residential "picture" windows, or for medium to large-size windows for commercial buildings. TWINDOW—Metal Edge units are completely prefabricated and consist of two or more panes of glass enclosing a small, hermetically sealed air space. Rectangular metal tubing separates the pieces of glass. The entrapped air is at atmospheric pressure. It is dehydrated initially by means of a drying agent in the spacer tubing.

The entire edge of each unit is encased in a stainless steel channel. This channel protects the seal, as well as the edges of the glass, during handling and installation.



glass edge

This unit is the only electrically fused, all-glass insulating windowpane, with glass-to-glass sealed edge. TWINDOW—Glass Edge is ideal for window-wall construction. It is composed of two panes of double strength A-Quality PENNVERNON Window Glass (⅛" thick), separated by a 3/16" air space. This unit is as easy to install as a single pane of glass. TWINDOW—Glass Edge insulating units are available in 70 standard sizes. Non-standard sizes are obtainable in minimum quantities of 500 of a size.

GLASS AND AIR SPACE. Made up of two pieces of DSA PENNVERNON Window Glass—3/16" air space—7/16" over-all thickness.

PORE SEAL. A slate gray ¼"-diameter spot appears near one corner of each TWINDOW—Glass Edge unit. This is the pore seal, and care should be taken not to damage it in handling, glazing and service.





The glass used in standard TWINDOW—Metal Edge units is Polished Plate Glass or PENNVERNON® Window Glass. For special purposes, other types of glass may be used:

1. Where day-long sunshine, unusual glare or extreme heat is a problem, SOLEX® Green-Tint Heat-Absorbing Glass, or SOLARGRAY® Neutral Gray Plate Glass, and Regular Plate Glass are recommended. Such combinations reduce the transmission of solar heat.
2. DUPLATE® or DUOLITE® Safety Glass. This combines thermal insulation with the safety of laminated glass.

AIR SPACES. Approximately ¼″ or ½″. Rabbet width and glazing limitations usually determine air space dimension.

SHAPES. Only flat TWINDOW—Metal Edge units are being manufactured. Most straight-edge patterns are available; even units with radius corners, if quantities are large.

Glazing Instructions

1. Prepare square, in plane openings, free of glazing obstructions. Metal or wood sash and frames must be adequate to support the weight of TWINDOW and to prevent twisting stresses. TWINDOW must literally float in the opening to avoid breakage—especially in large units.
2. Bed the glazing rabbet with only a moderate amount of glazing compound to permit easy positioning of the unit.
3. Place along the bottom rabbet two treated wood setting blocks—each 3″-4″ long and located ¼″ of the width in from each end of the TWINDOW.
4. Ease the TWINDOW into the rabbet on the setting blocks and press it firmly against the bedding compound.
5. Fill the voids around the edges of the TWINDOW unit, apply face-glazing compound and set the stop.*

*Special TWINDOW wire-glazing clips are available for ½″ units glazed in operating metal sash.

**Glazing Instructions*

1. Each unit should be installed with the pore seal at one of the top corners.
2. Use glazing stops, where possible, to avoid steep face-glazing compound angles.
3. Use elastic glazing compound or other material that retains some resilience permanently. Do not use putty.
4. Completely bed all units with compound, making sure in advance that adequate edge and lateral clearances are present.
5. Use two (only) 3″-long wood setting blocks which have been previously treated with preservatives. Each block should be located ¼″ of the width in from each end of the unit and be at least as wide as the TWINDOW—Glass Edge unit is thick.
6. Space units glazed in metal sash properly, to avoid metal-to-glass contact.

*More detailed glazing instructions will be supplied.

Insulating Value of Twindow Compared to Single Glass
(Data applicable to both types of TWINDOW)

Type Glazing	Glass Thickness	Air Space Thickness	"U"* Value	Savings in Heat Transfer Over Similar Area Single-Glazed with Same Thickness Glass
Single	⅛″		1.14	
	¼″		1.12	
TWINDOW—Metal Edge	⅛″	¼″	.63	45%
	¼″	¼″	.61	46%
	⅛″	½″	.57	50%
	¼″	½″	.55	51%
TWINDOW—Glass Edge	⅛″	3/16″	.67	41%

*"U" Value is the amount of heat, expressed in BTU's, which will pass through one square foot of window area per hour for each degree Fahrenheit temperature difference between air on the inside and air on the outside. (Values shown are based on 70° F. temperature inside, 0 mph wind velocity; 0° F. outside, 15 mph wind velocity.)

USES. Residential Picture Windows and Operating Windows. Store Fronts. Commercial, Industrial and Institutional Building Glazing. Refrigerated Display Cases. Air-Conditioned Railroad Passenger Car and Bus Glazing. Special Low-Temperature Test Chambers. House Trailers. Sliding Doors.

twindow® insulating glass (cont'd)

dimensions:

metal edge

Glass Thickness †	Air † Space	Max. Area Sq. Ft. *	Dimensional Tolerances	Unit Thickness ¼" Air Space	Unit Thickness ½" Air Space	Approx. Average Net Weights Per Sq. Ft.
⅛"	¼" or ½"	12	To 48" +1/16",−1/16" Over 48" +⅛", −1/16"	17/32" ±1/32"	13/16" ±1/32"	3½ lbs.
3/16"	¼" or ½"	22	To 48" +⅛", −1/16"	11/16" ±1/32"	15/16" ±1/32"	5¼ lbs.
¼"	¼" or ½"	70 50 (Solex®)	Over 48 +3/16",−1/16"	13/16" ±1/32"	11/16" ±1/32"	7 lbs.

*Minimum size, 28 actual united inches.

† Glass thickness and air space are subject to practical manufacturing tolerances.

glass edge

Glass Thickness	Air Space	Max. Area Sq. Ft.	Dimensional Tolerances	Unit Thickness	Approximate Average Net Weights Per Sq. Ft.
⅛"	3/16"	12	±1/16"	7/16" ±1/32"	3½ lbs.

standard sizes:

metal edge

TWINDOW—Metal Edge units are available in 60 standard sizes, which when reversed, width and height, make in effect 120 sizes. The sizes listed here apply only to a construction of two pieces of ¼'' Polished Plate Glass, with a ½'' air space:

33"x76¾"	44½"x60⅜"	48"x72"	50⅜"x60¼"	58"x116½"
35½"x36"	45"x76¾"	48⅛"x55¼"	52½"x58⅛"	60"x72"
35½"x48⅛"	45⅜"x52"	48⅛"x68¾"	52½"x70⅛"	60¼"x66⅝"
35½"x60⅜"	46"x48½"	48⅛"x75"	55¼"x60⅜"	60⅜"x68¾"
36"x44½"	46"x64½"	48⅛"x93"	56½"x58⅛"	60⅜"x75"
36"x55¼"	46"x72½"	48½"x50"	56½"x66"	60⅜"x93"
36"x68¾"	46⅛"x52½"	48½"x58"	56½"x70⅛"	64½"x66"
36"x75"	46⅛"x56½"	50"x56½"	57"x76¾"	66"x72½"
36"x93"	47⅞"x50⅜"	50"x64½"	58"x64½"	66"x84"
42"x66"	47⅞"x66⅝"	50"x72½"	58"x72½"	66"x96"
42"x72"	48"x48"	50"x80½"	58"x80½"	72"x84"
44½"x48⅛"	48"x60"	50"x96½"	58"x96½"	72"x96"

SPECIAL STANDARD SIZES FOR "WINDOW WALL" CONSTRUCTION

Not reversible—Width (W) and Height (H)

2 Pieces ⅛" PENNVERNON® Window Glass—¼" Air Space
45½"(W) x 25½"(H) 42½"(W) x 22½"(H)

2 Pieces 3/16" PENNVERNON Window Glass—½" Air Space
45⅜"(W) x 52"(H)

2 Pieces 3/16" PENNVERNON Window Glass—¼" Air Space For Economy Sliding Doors
33"(W) x 76¾"(H) 34"(W) x 76"(H)
45"(W) x 76¾"(H) 46"(W) x 76"(H)

pittco® sliding glass doors

Beauty, freedom and open vision can be added to any residential or commercial structure with PITTCO® Sliding Glass Doors. They are made for either single glass or TWINDOW Insulating Glass.

PITTCO Sliding Glass Doors are top-quality units that meet the highest standards of workmanship and finish throughout. The doors roll on stainless steel ball bearing bronze sheaves that assure greater strength, quiet, smooth operation and long, trouble-free service. All exposed aluminum is treated with pleasing, lustrous Alumilite.

For added convenience and comfort in the summer months, provision is made for screens, which slide on a track provided in the threshold. All screens are fitted with a new-type latch actuated by thumb turn on the inside only.

Strong, rigid construction distinguishes the all-tubular frame of PITTCO Sliding Glass Doors. The mouldings are of extruded aluminum. Inter-locking meeting stiles, gasketed with 3-point weathering, make these doors an effective barrier against cold, dust, insects and moisture.

The modest lines and plain surfaces of PITTCO Sliding Glass Doors give them a distinctively modern look that fits into any surrounding. The hardware is conservative in design and dependable. Sliding panels are equipped with a sturdy and compact latch actuated by a thumb turn on the inside and a keyed lock on the outside.

(Right)
Sliding Glass doors are being designed into homes and commercial buildings more and more. They may be glazed with various types of single pane Glass, as well as with TWINDOW twin-glass insulating windowpanes.

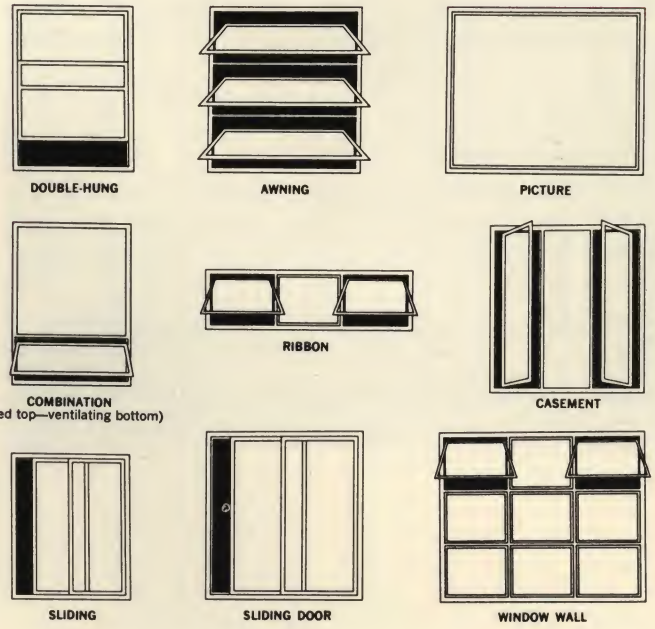
(Extreme right)
Here's an unusual use of Sliding Glass Doors. This installation, in the Eastern part of the country, opens into another room. Thus, clear vision and light are shared between the rooms, with a minimum of noise transference.

glass edge

Constructed of two pieces of ⅛″ PENNVERNON Window Glass with 3/16″ air space. TWINDOW—Glass Edge units are available in 70 standard sizes:

16″ x 24″	21 1/16″ x 24 5/8″	27 1/4″ x 18 1/4″	36 5/8″ x 30 1/4″
16″ x 32″	21 1/16″ x 30 13/16″	27 1/4″ x 22 1/4″	36 5/8″ x 49 1/4″
16″ x 36″	21 1/16″ x 36 13/16″	27 1/4″ x 30 1/4″	39 5/8″ x 14 1/4″
16″ x 48″	21 1/16″ x 49″	28″ x 16″	39 5/8″ x 18 1/4″
16″ x 60″	21 1/16″ x 61 3/16″	28″ x 20″	39 5/8″ x 22 1/4″
16 9/16″ x 24 5/8″	22″ x 18″	28″ x 24″	39 5/8″ x 30 1/4″
16 9/16″ x 30 13/16″	22″ x 55 9/16″	32″ x 16″	39 5/8″ x 49 1/4″
16 9/16″ x 36 13/16″	24″ x 16″	32″ x 20″	40″ x 16″
16 9/16″ x 49″	24″ x 20″	32″ x 24″	40″ x 20″
16 9/16″ x 61 3/16″	24″ x 24″	33″ x 21″	40″ x 24″
19″ x 15″	24″ x 32″	34 11/16″ x 22 11/16″	42 1/2″ x 22 1/2″
20″ x 16″	24″ x 36″	36″ x 16″	44″ x 16″
20″ x 20″	24″ x 48″	36″ x 20″	44 5/8″ x 14 1/4″
20″ x 24″	24″ x 60″	36″ x 24″	44 5/8″ x 18 1/4″
20″ x 32″	24 1/4″ x 15 1/4″	36 5/8″ x 14 1/4″	44 5/8″ x 22 1/4″
20″ x 36″	27 1/4″ x 10 1/4″	36 5/8″ x 18 1/4″	44 5/8″ x 30 1/4″
20″ x 48″	27 1/4″ x 14 1/4″	36 5/8″ x 22 1/4″	44 5/8″ x 49 1/4″
20″ x 60″			45 1/2″ x 25 1/2″

Now—TWINDOW can be used in every window in the house!







herculite® doors and sidelights

Design possibilities with both ½″ and ¾″ HERCULITE Doors are practically unlimited. Sturdiness, strength and endurance are among their outstanding characteristics.

The uninterrupted transparency of HERCULITE Doors allows the interior and exterior architecture of entrances to be harmonized and coordinated. The use of these doors in entrances assures effective daylighting and illumination.

Applied Hardware

The Aluminum, Bronze or Stainless Steel door hardware is cemented to the tempered Glass at the factory. The hardware has been designed to receive top and bottom pivot parts, locks and bolts, and builders' hardware items.

herculite sidelights

These are ½″ and ¾″-thickness Tempered Polished Plate Glass. They are available with or without hardware to match HERCULITE Doors. The maximum glass size is 72″ x 108″. For more complete information, see the "Check List" on page 3, and refer to Sweet's Architectural File, Section 16d.

(Right)
HERCULITE Doors, combined with Polished Plate Glass, give this entrance to the First Security Bank of Salt Lake City, Utah, an open, spacious feeling. Building owners report that such entrances please existing customers and attract new business. Architects: Bank Building and Equipment Corporation of America, St. Louis, Mo.; Associate Architect: Slack W. Winburn, Salt Lake City.

(Extreme right)
This entrance to Berlands, women's shoe store in Memphis, Tennessee, further underscores the effectiveness of **Pittsburgh's** HERCULITE Doors, in combination with Pittsburgh Polished Plate Glass, to help the architect create open-vision designs of immediate appeal and practicality. People like to shop where the atmosphere is "airy" and light. Architects: Benjamin Shapiro & Robert Tisdale, St. Louis, Mo.

herculite door frames

Factory-built HERCULITE Door Frames are manufactured by metal craftsmen to assure highest quality and accurate dimensions. The frames are ruggedly reinforced with steel channels and tie rods. They are constructed of heavy extruded Aluminum, highly polished and anodized; Bronze; Stainless Steel. (Stainless Steel Frames have an appearance similar to Aluminum and Bronze, but are not of extruded metal.)

Pittsburgh HERCULITE Door Frames are equipped with the PITTCO® Checking Floor Hinge, moulding for transom glass, supports for sidelights, strikes for locks, sockets for bolts, and thresholds when specified.

The frames are easy to install since they are supplied as a "packaged unit." The dimensions of the doors, frames and sidelights are coordinated to assure a proper fit. The completed doorways have outstanding appearance, quality features and durable construction.

standard frames

Twelve standard-style frames with heights up to 12′0″ are available to accommodate single doors, a door with two sidelights, or a pair of doors. Four free-standing door frames, for single doors or a pair of doors, are also available for prompt shipment. Standard frames, used individually or in combination, can be installed in most entrances.

This outstanding group of frames is marked by economy of standard frame construction, availability, and ease of design and detailing. When the design of an entrance calls for special sizes and construction, custom frames can be fabricated from all of the standard frame sections and custom sections.



This eye-arresting entrance to Butler's Shoe Store in Memphis, Tenn., features a free-standing HERCULITE Door Frame. A remodeling job, it emphasizes open vision, making the interior one giant display. Architect: E. L. Harrison, Memphis, Tennessee.





tubelite® doors and frames

TUBELITE Doors and Frames represent a distinct advance in hollow metal entrance design. They are fabricated of heavy extruded, hollow aluminum tubes with no exposed seams. Their excellent quality, superb aluminum finish and simplicity of design make them ideal for new buildings and the modernization of old ones.

Qualities

The minimum wall thickness is ⅛″. Anchor brackets at joints and reinforcement for hardware are completely concealed and fastened in place without the fastening method being detectable on visible surfaces. Mechanical joints of doors and frames are accurately milled to a hairline, watertight joint. The glazing member is made to be snapped in, thus eliminating the use of exposed screws. See Section 16a of Sweet's Architectural File for more information.



In the Home Furniture Store, Winona, Minnesota, TUBELITE Doors and Pittsburgh Polished Plate Glass are basic elements of the architectural design. Here, again, is demonstrated the great adaptability of these doors and frames. TUBELITE offers a high-quality product at moderate cost. Architect: Edwin O. Eckert, Winona, Minn.

west tension doors

Narrow stiles and rugged strength make the West Tension Door the quality metal-framed door. Strength is provided by ½″ thick Glass held under compression by a thin metal frame. The frame is drawn together by concealed bolts and compression applied by means of heavy leaf springs in the lower glazing channel. The principle of this new patented door results in a solid unit with increased glass area that can never sag, rack or get out of alignment.

The simplicity of the West Tension Door affords unlimited variations and adaptations in design. Standard or specially designed handles can be applied direct to the Glass for complete open vision. Locks can be in either the top or bottom rails. With center locks, the door can be adapted for almost any type of locking requirement. It is suitable for operation with any type of automatic opening device. Available in clear anodized Aluminum or Bronze, it is moderately priced and completely dependable in operation. For complete information, see Sweet's Architectural File 16d.

pittco® hinge

The PITTCO Checking Floor Hinge is a product of the most advanced engineering and the best manufacturing practices. It can be supplied as a center, safety or offset-pivoted hinge for use with HERCULITE® Doors, West or other similar doors. A retractable top pivot is supplied with the hinge.

Essentially, the operation of the PITTCO Hinge is a combined mechanical and hydraulic action. The closing speed and checking are controlled by hydraulic action regulated by control screws on the top face of the hinge. Every PITTCO Hinge is tested at 300-pounds-per-square-inch pressure to assure that all hydraulic gaskets are properly sealed. The special hydraulic fluid used enables the hinges to perform correctly at the extreme high and low temperatures encountered at varying geographic locations.

PITTCO Hinges are furnished complete with cement case, top pivot assembly, and fittings required to secure a tempered glass door, or similar door, to the hinge.

High-quality roller bearings are used in PITTCO Hinges. Precision workmanship upon the finest metals results in durability, efficiency and trouble-free operation. For complete information, see Sweet's Architectural File 18e.

PITTCO Hinges are available in several types, with or without the hold-open feature, and with a range of spring tensions to satisfy the requirements of almost every entrance.

Before selecting a hinge, analyze the entrance requirements according to the following: 1. Type of door—tempered glass, metal or wood. 2. Center or offset pivot. 3. Single or double action. 4. Hinge-opening action or degree of swing. 5. Hold-open or no hold-open.

pittcomatic® hinge ... the nation's finest automatic door opener

The PITTCOMATIC Hinge is an automatic door opener operated by a simple, hydraulic, motor-driven unit. It can be used for HERCULITE®, West, TUBELITE® or similar doors. A compact unit, it can be easily installed and maintained.

Operation of a PITTCOMATIC Hinge is very simple. The electrical system is activated either by contacting the door handle or by pressure on a floor mat. When the system is in operation, the power unit pumps fluid to the floor hinge to cause the door to open. The smooth hydraulic action is carefully regulated from start to stop. If the door encounters resistance to opening, the safety valve prevents a build-up of pressure. The closing cycle is free of power and is controlled by the same safe checking and speed controls supplied with manual PITTCO Hinges. When the power is off, the doors can be operated manually. See Sweet's Architectural File, Section 18e, for more information.

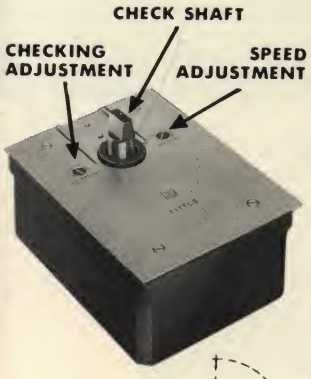
Handle Control

The PITTCOMATIC Hinge with push-pull handles is the only automatic door opener for use on double-acting doors. Push-pull handles should be used on entrances having only one door, doors at the building line, or wherever traffic conditions require close control over the door.

The hinge is activated by a 6V AC spring-loaded contact switch concealed in the handle. A light push or pull on the



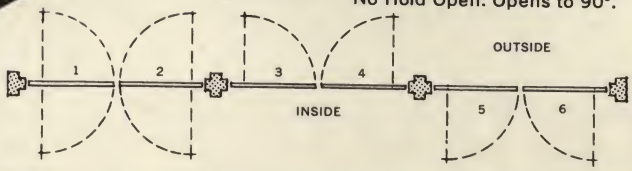
West Tension Doors form the entrance to the Society for Savings, West Hartford, Connecticut. In these doors are combined simplicity of design with structural strength. These doors are extremely adaptable to almost any architectural requirement. Architects: Jeter & Cook, Hartford, Connecticut.



Selection of Type of Hinge

Ten types of PITTCO Hinges are available. Select the type according to entrance requirements.

No. 10-120—Double Acting (Swing 1 and 2) Hold Open at 95°.
No. 10-125—Double Acting (Swing 1 and 2) No Hold Open. Opens to 85°.
No. 10-100—Single Acting (Swing 3 and 6) No Hold Open. Opens to 90°.
No. 10-105—Single Acting (Swing 4 and 5) No Hold Open. Opens to 90°.



Refer to swing numbers shown above when specifying PITTCO Hinge. Indicate "Swing 3" instead of "Single-acting door opening out."

No. 10-110—Single Acting (Swing 3 and 6) Hold Open at 95°.
No. 10-115—Single Acting (Swing 4 and 5) Hold Open at 95°.
No. 10-150—Single Acting (Swing 3 and 6) Hold Open at 105°.
No. 10-155—Single Acting (Swing 4 and 5) Hold Open at 105°.
No. 10-180—Single Acting (Swing 3 and 6) No Hold Open. Opens to 100°.
No. 10-185—Single Acting (Swing 4 and 5) No Hold Open. Opens to 100°.

Models 10-120, 10-125, 10-100 and 10-105 have resistance to opening at 70°. All others have resistance at 90°.

Tension Selection

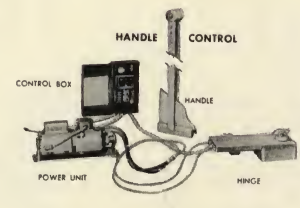
PITTCO Hinges are available with light or heavy spring tension in numbers 2, 4, 6, or 8. Select the tension to satisfy the entrance requirements.

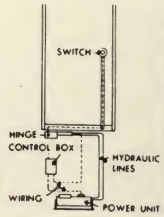
handle opens the door. The push-pull handles control the directional movement of the door at all times.

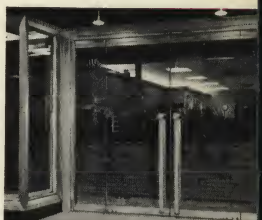
Mat Control

Mat controls are for use on single-acting doors only. The PITTCOMATIC Hinge with floor mat is therefore limited to buildings having both IN and OUT single-acting doors. The mat operation is desirable in entrances to food markets and other buildings where a remote control is preferred.

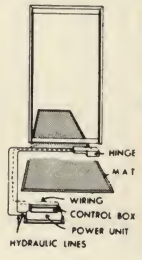
The mat has a lead end at the approach to the door which opens the door away from the pedestrian, and a safety end which holds the door open while he is on the mat. This appeals to a customer with an armful of packages.













pittco® store front metal

PITTCO Store Front Metal is a complete line of glass-holding and decorative members—sashes, sills, heads, jambs, bars, and mouldings. Available in soft, graceful contours, as well as plain, angular design, PITTCO Store Front Metal offers the architect almost unlimited freedom in designing the modern store front.

The PITTCO Store Front Metal line includes both rolled and extruded members. With certain limitations, members produced by both processes can be combined in a single store front with highly satisfactory results.

As complete as the PITTCO line is, it cannot possibly express all the facets of an architect's creativeness. To handle special designs, the PITTCO Store Front Metal plant has facilities for modifying existing members or creating entirely new ones.

With PITTCO Store Front Metal, substantial time savings are realized because setting operations are easily performed. More information about PITTCO Store Front Metal can be had in Sweet's Architectural File, Section 21. For information on 82-X Curtain-Wall Framing System, see Section 3e.



A striking example of the effective use of a **Pittsburgh** open-vision store front, utilizing PITTCO Store Front Metal, is the remodeled Rhodes, Inc., Furniture Store, Burlington, North Carolina. Architect: Charles Kendall, High Point, N. C.

pittsburgh glass products

are available through:

290 branches of the Pittsburgh Plate Glass Company;

Pittsburgh Glass Distributors;

On the Pacific Coast through 58 branches of W. P. Fuller & Co.;

In Canada through Canadian Pittsburgh Industries Limited.

Printed in U.S.A.

G91105 • 54M • 9-59

MAGNALITE

7a
Ri



brochure M-1960

obscuring-diffusing glass

AIA File No. 26-A-4

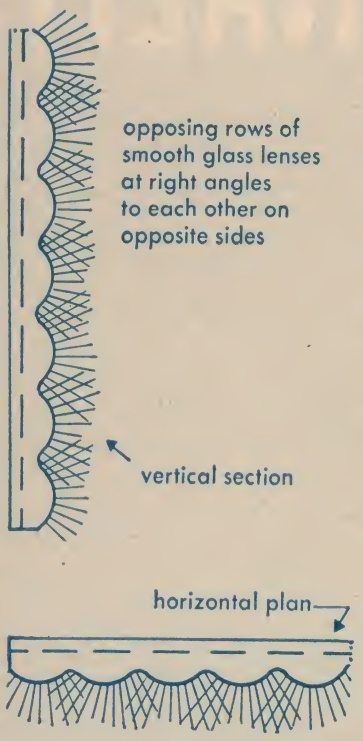
J. MERRILL RICHARDS
25 HUNTINGTON AVE., BOSTON, MASS.

decorative functional glass

for use where wide light distribution with great obscurity is desired

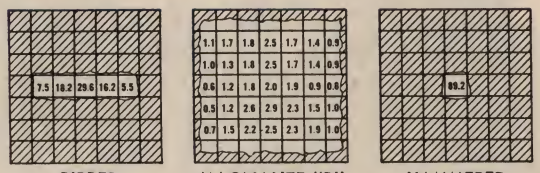
Magnalite is a clear glass with series of cylindrically shaped lenses covering each surface and running at right angles to each other. The shape of these lenses in type "B" conforms to an **exclusive optical formula** to produce even light distribution over wide areas.

features



- Design appeal
- Exclusive functional properties
- Great obscurity without surface treatments
- Easy to clean and keep clean
- Transmits abundance of mellowed light over wide areas (See chart)
- Dramatic effects with lights behind

even light distribution



RIBBED | MAGNALITE "B" WIRED | HAMMERED

COMPARATIVE LIGHT DIFFUSION IMAGES OF SUNLIGHT
Figures are in relative percentages of incident light intensity.

thicknesses and weights

type	thickness	weight sq. ft.	approx. wt. packed domestic cases
A plain	7/32"	3.0 lbs.	3.7
B plain	7/32"	3.0 lbs.	3.7
B wired	1/4"	3.3 lbs.	4.0

size sheets

Standard stock sheets up to 60" wide in even inches and up to 120", 132" and 144" long in random lengths.

manufacture Magnalite is manufactured by the Mississippi Glass Company.

specification Magnalite Type "A" or "B" Plain. Magnalite Type "B" Wired, Misco Mesh.
Federal DD-G-451a, Type III (c), Class VI.

distribution Magnalite is sold domestically, by leading glass dealers everywhere and through established foreign agents. Free samples on request.

for schools • colleges • hospitals • institutions • art galleries • stores



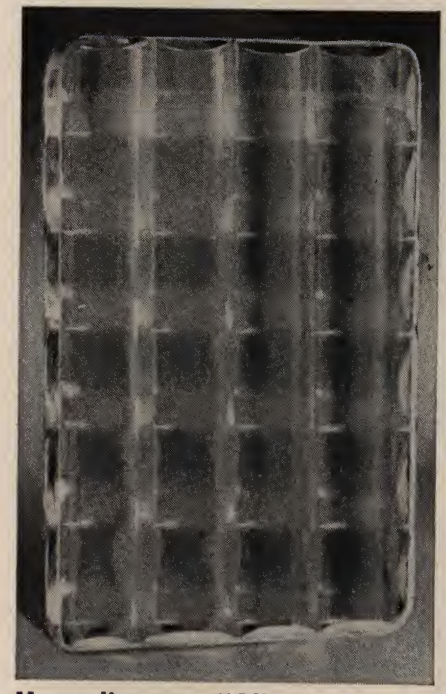
Magnalite Type "A"—Screening main offices. Hurld Elementary School, Woburn, Massachusetts. Perley F. Gilbert Associates, Architects.



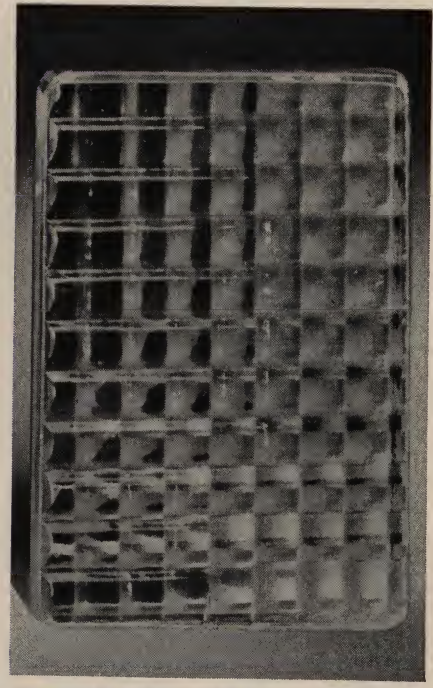
Magnalite Type "B" Wired—Glass in ceiling lights in corridor. Fox Point Elementary School, Providence, R. I. Cull & Robinson, Architects.

Magnalite diffusing glass

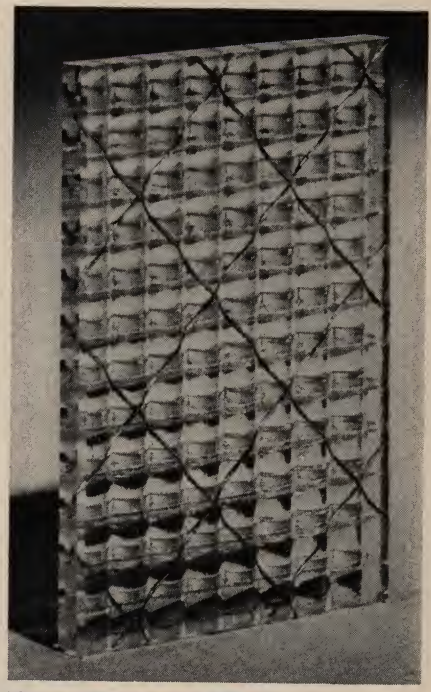
three types of glass — illustrations approximately actual size



Magnalite type "A"
lenses approx. ½" on centers



Magnalite type "B"
lenses approx. ¼" on centers

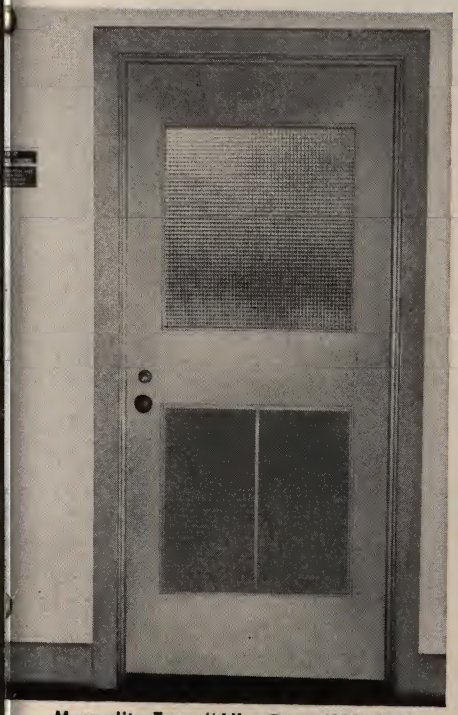


Magnalite type "B" Wired
Misco Mesh—exclusively

Magnalite is a handsome glass original in design. Type "A" is distinctive, ornamental and produces striking effects. Type "B" is conservative and recommended where glass will not be a dominant feature.

USES. Both types are used in interior partitions, screens, divisions, doors, etc. Type "B" Wired is especially efficient in ceiling lights and for glazing illuminating units.

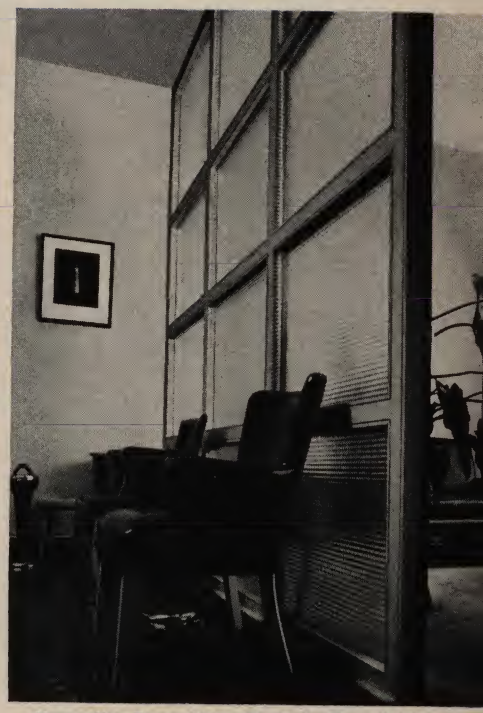
monumental buildings • residences • commercial offices • restaurants



Magnalite Type "A"—Over 4000 doors in the Pentagon.

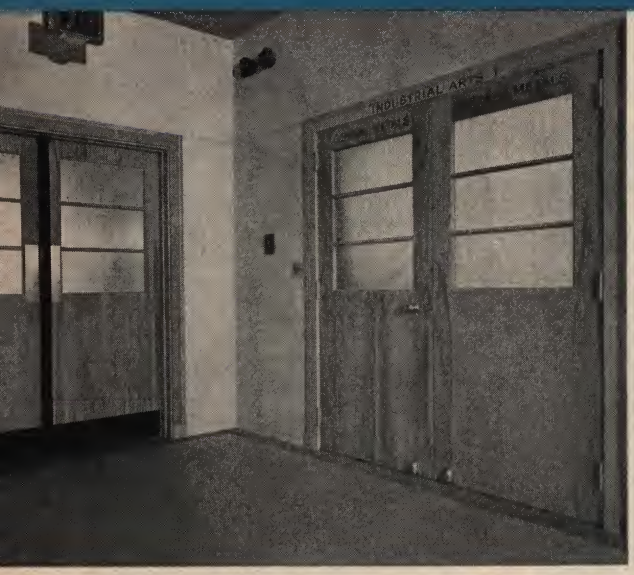


Magnalite Type "A"—One of the nationally known Howard Johnson restaurants.



Magnalite Type "A"—Typical office division.

various applications of Magnalite diffusing glass



Magnalite Type "B"—David Worcester Jr. High School, Stratford, Conn.; Charles Wellington Walker, Architect. (Basement windows glazed with Type "B" wired.)



Magnalite Type "A"—Lends an atmosphere of privacy and cheer to beauty salon.



Magnalite Type "B" Misco Wire—Better lighted corridors. Clara Barton Elementary School, North Oxford, Massachusetts. Franklyn R. Williams, Architect.



Magnalite Type "A"—Tanners National Bank, Woburn, Massachusetts.

J. MERRILL RICHARDS

25 HUNTINGTON AVENUE

BOSTON 16, MASS.

Magnalite Glass is sold by leading glass dealers everywhere.



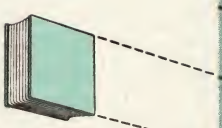
Magnalite Type "A"—Glass in partitions—Sidney Hillman Medical Center of the Male Apparel Industry of Philadelphia. Louis Magaziner & Herman Polss, Archts.

OWENS-ILLINOIS GLASS BLOCK

ARCHITECTURAL CATALOG AIA FILE 10-F

7b
Ow





Available in both solar-selecting and decorative units, in two sizes. See pages 4 and 5.



NEW! Glass Block with Color-in-the-Glass

Now . . . for the first time . . . Owens-Illinois brings you a series of glass blocks where color is added to the glass itself! An Owens-Illinois process makes it economically feasible to offer glass block in both water-clear glass and two tints of blue-green.

Daylight-controlling glass blocks are offered in a cool, eye-resting "Shade Green," and decorative units in a pleasant, blue-green "Shade Aqua."

These exciting new colors-in-the-glass, combined with ceramic accent colors, offer the architectural designer a new concept for the tried and tested, masonry-material, glass block.

K-10 50M 601 Printed in U.S.A



Niles High School, Niles, Michigan · Architect, Eberle M. Smith Associates, Inc.

Basic Properties of Owens-Illinois Glass Block

Now in its twenty-fifth year, Owens-Illinois Glass Block is an accepted, standard building material. Here are some of the reasons why:

ABSOLUTE PERMANENCE. Glass Block panels are built of durable glass and mortar—nothing to rot or corrode. Breakage is unusual, no painting is ever required.

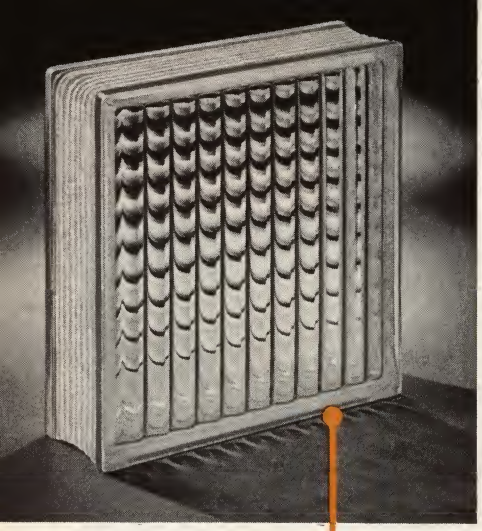
INSULATION. Glass Block's high insulation value is an advantage in both summer and winter. Heat loss in winter is less than half of that through windows. This means lower heating costs—less condensation on glass.

In summer, Glass Block transmits less than half as much solar heat as single-glazed windows.

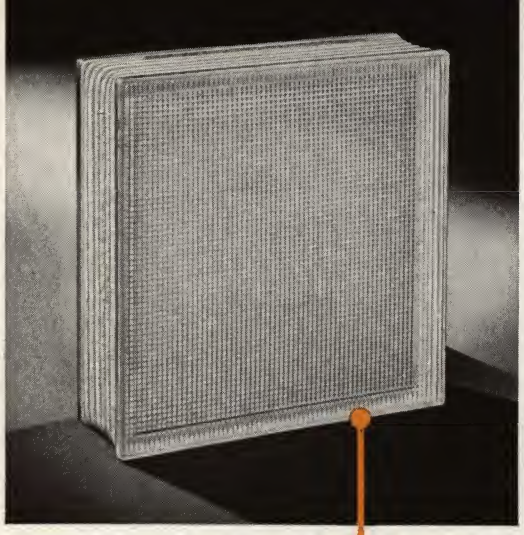
LIGHT CONTROL. Because Glass Block is a hollow, partly evacuated unit having four surfaces into which designs can be impressed, Owens-Illinois solar-selecting types offer better control of daylight than any other glass building material available to the architect today.

NOISE REDUCTION. Owens-Illinois has a sound reduction factor equal to the better class of fireproof partition.

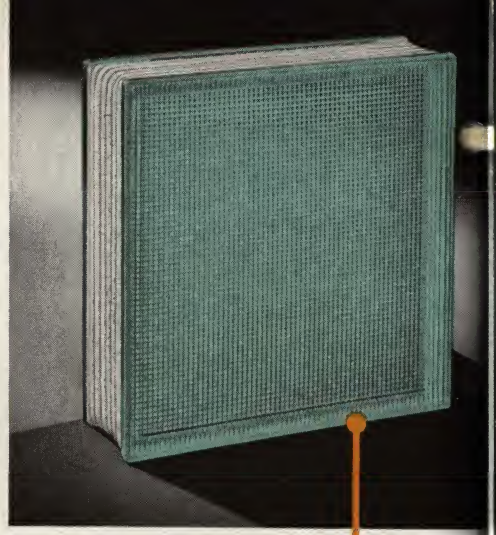
EASE OF INSTALLATION. The materials and techniques for installation make Owens-Illinois glass block as easy to install as ordinary brick. Faces of all units (except the ceramic-faced) are coated with a non-removable chemical finish which makes for easy removal of excess mortar.



designs nos. 16 | 16-F



designs nos. 80 | 80-F



shade green 80-G | 80-G



designs nos. 07 | 07-F

SOLAR-SELECTING

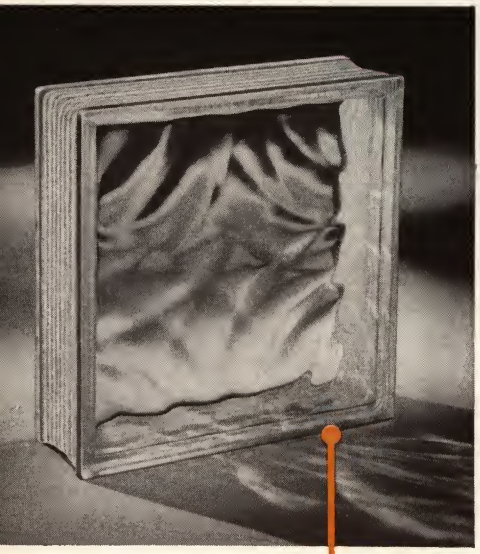
Owens-Illinois solar-selecting blocks reject sunlight when its intensity reaches a maximum. Rejecting this peak intensity of solar energy cuts brightness to a minimum, and also reduces solar heat input into a building. Distribution and diffusion of daylight is excellent.

Famous Owens-Illinois solar-selecting glass block are now available in both water-clear glass and a beautiful new green glass, *Shade Green*. These blocks can be furnished in both 8″ and 12″ sizes. Their recommended uses are as follows:

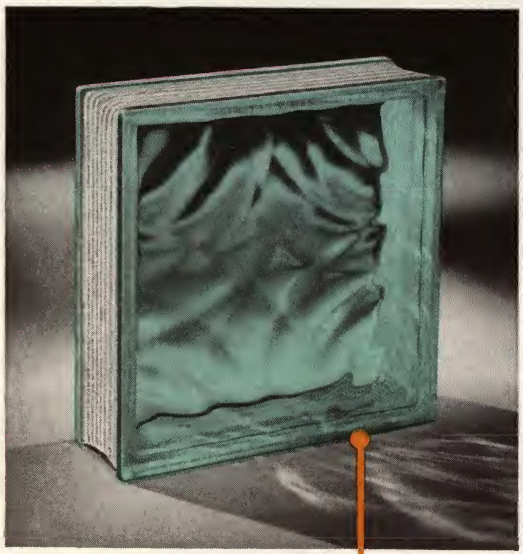
FOR SUN EXPOSURES. Use designs No. 80-F (water-clear glass) or No. 80-GF (*Shade Green* glass). Both of these designs have fiberglas diffusing screens sealed in the center of the block for maximum light control.

FOR NON-SUN EXPOSURES. Use designs No. 80 or No. 80-G.

Printing limitations make it impossible to accurately portray the beauty of Owens-Illinois Shade Green and Shade Aqua glasses. Samples are available if desired.



design no. 30



shade aqua no. 30-A



design no. 31

design, size and description

OWENS-ILLINOIS GLASS BLOCK



design no. **32**

CERAMIC-*faced*

These blocks have bright, permanent ceramic colors fused on the exterior surface. While they are low in light transmission, compared to other glass block, the color does "come through." They are most often used as accent colors in panels of other block.

They are available in both 6" and 8" sizes in design No. 32. This design has smooth exterior faces with interior faces similar to design No. 31. They are available in the following colors:

1. *Pastel Blue*
2. *Coral*
3. *Pastel Green*
4. *Charcoal Gray*
5. *Black*
6. *White*
7. *Deep Blue*
8. *Deep Green*
9. *Deep Red*
10. *Orange*
11. *Walnut*
12. *Yellow*

ORDER BY THESE NUMBERS		SQUARE BLOCKS NOMINAL 6" (3⅞" × 5¾" × 5¾")	NOMINAL 8" (3⅞" × 7¾" × 7¾")	NOMINAL 12" (3⅞" × 11¾" × 11¾")	DEGREE OF PRIVACY	FIBER GLASS INSERT	SMOOTH FACE	RIBBED FACE
DECORATIVE	16	216	316	416	*Fair*		•	
	16-F		316-F		*Good*	•	•	
	07		307	407	*Limited*		•	
	07-F		307-F		*Fair*	•	•	
	30	230	330	430	*Fair*		•	
	30-A		330-A	430-A	*Good*		•	
	31		331	431	*Poor*		•	
	31-A		331-A	431-A	*Fair*		•	
	40		340	440	*Good*			•
	70		370	470	*None*		•	
CERAMIC FACE	32	232*	332*		*Complete*		•	
SOLAR SELECTING	80		380	480	*Complete*			•
	80-F		380-F	480-F	*Complete*	•		•
	80-G		380-G	480-G	*Complete*			•
	80-GF		380-GF	480-GF	*Complete*	•		•
NUMBER/CARTON		12	8	4				
POUNDS/CARTON		43	55-58	63				

* ADD NAME OF COLOR



shade aqua no. **31-A**

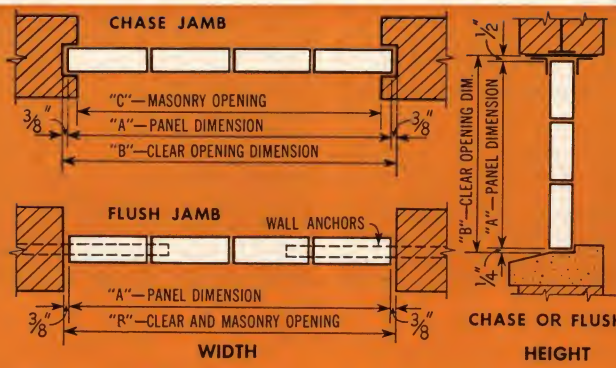


design no. **40**



design no. **70**

table of dimensions



NOTE: ADD ½" TO HEIGHT DIMENSION "B" FOR LINTEL DEFLECTION

No. of Units	5¾" SQUARE BLOCKS			7¾" SQUARE BLOCKS			11¾" SQUARE BLOCKS		
	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"
1	5¾"	6½"	2⅜"	7¾"	8½"	4⅜"	11¾"	1'-0½"	8⅜"
2	11¾"	1'-0½"	8⅜"	1'- 3¾"	1'-4½"	1'-0⅜"	1'-11¾"	2'-0½"	1'-8⅜"
3	1'- 5¾"	1'-6½"	1'-2⅜"	1'-11¾"	2'-0½"	1'-8⅜"	2'-11¾"	3'-0½"	2'-8⅜"
4	1'-11¾"	2'-0½"	1'-8⅜"	2'- 7¾"	2'-8½"	2'-4⅜"	3'-11¾"	4'-0½"	3'-8⅜"
5	2'- 5¾"	2'-6½"	2'-2⅜"	3'- 3¾"	3'-4½"	3'-0⅜"	4'-11¾"	5'-0½"	4'-8⅜"
6	2'-11¾"	3'-0½"	2'-8⅜"	3'-11¾"	4'-0½"	3'-8⅜"	5'-11¾"	6'-0½"	5'-8⅜"
7	3'- 5¾"	3'-6½"	3'-2⅜"	4'- 7¾"	4'-8½"	4'-4⅜"	6'-11¾"	7'-0½"	6'-8⅜"
8	3'-11¾"	4'-0½"	3'-8⅜"	5'- 3¾"	5'-4½"	5'-0⅜"	7'-11¾"	8'-0½"	7'-8⅜"
9	4'- 5¾"	4'-6½"	4'-2⅜"	5'-11¾"	6'-0½"	5'-8⅜"	8'-11¾"	9'-0½"	8'-8⅜"
10	4'-11¾"	5'-0½"	4'-8⅜"	6'- 7¾"	6'-8½"	6'-4⅜"	9'-11¾"	10'-0½"	9'-8⅜"
11	5'- 5¾"	5'-6½"	5'-2⅜"	7'- 3¾"	7'-4½"	7'-0⅜"	10'-11¾"	11'-0½"	10'-8⅜"
12	5'-11¾"	6'-0½"	5'-8⅜"	7'-11¾"	8'-0½"	7'-8⅜"	11'-11¾"	12'-0½"	11'-8⅜"
13	6'- 5¾"	6'-6½"	6'-2⅜"	8'- 7¾"	8'-8½"	8'-4⅜"	12'-11¾"	13'-0½"	12'-8⅜"
14	6'-11¾"	7'-0½"	6'-8⅜"	9'- 3¾"	9'-4½"	9'-0⅜"	13'-11¾"	14'-0½"	13'-8⅜"
15	7'- 5¾"	7'-6½"	7'-2⅜"	9'-11¾"	10'-0½"	9'-8⅜"	14'-11¾"	15'-0½"	14'-8⅜"
16	7'-11¾"	8'-0½"	7'-8⅜"	10'- 7¾"	10'-8½"	10'-4⅜"	15'-11¾"	16'-0½"	15'-8⅜"
17	8'- 5¾"	8'-6½"	8'-2⅜"	11'- 3¾"	11'-4½"	11'-0⅜"	16'-11¾"	17'-0½"	16'-8⅜"
18	8'-11¾"	9'-0½"	8'-8⅜"	11'-11¾"	12'-0½"	11'-8⅜"	17'-11¾"	18'-0½"	17'-8⅜"
19	9'- 5¾"	9'-6½"	9'-2⅜"	12'- 7¾"	12'-8½"	12'-4⅜"	18'-11¾"	19'-0½"	18'-8⅜"
20	9'-11¾"	10'-0½"	9'-8⅜"	13'- 3¾"	13'-4½"	13'-0⅜"	19'-11¾"	20'-0½"	19'-8⅜"
21	10'- 5¾"	10'-6½"	10'-2⅜"	13'-11¾"	14'-0½"	13'-8⅜"	20'-11¾"	21'-0½"	20'-8⅜"
22	10'-11¾"	11'-0½"	10'-8⅜"	14'- 7¾"	14'-8½"	14'-4⅜"	21'-11¾"	22'-0½"	21'-8⅜"
23	11'- 5¾"	11'-6½"	11'-2⅜"	15'- 3¾"	15'-4½"	15'-0⅜"	22'-11¾"	23'-0½"	22'-8⅜"
24	11'-11¾"	12'-0½"	11'-8⅜"	15'-11¾"	16'-0½"	15'-8⅜"	23'-11¾"	24'-0½"	23'-8⅜"
25	12'- 5¾"	12'-6½"	12'-2⅜"	16'- 7¾"	16'-8½"	16'-4⅜"	24'-11¾"	25'-0½"	24'-8⅜"
26	12'-11¾"	13'-0½"	12'-8⅜"	17'- 3¾"	17'-4½"	17'-0⅜"			
27	13'- 5¾"	13'-6½"	13'-2⅜"	17'-11¾"	18'-0½"	17'-8⅜"			
28	13'-11¾"	14'-0½"	13'-8⅜"	18'- 7¾"	18'-8½"	18'-4⅜"			
29	14'- 5¾"	14'-6½"	14'-2⅜"	19'- 3¾"	19'-4½"	19'-0⅜"			
30	14'-11¾"	15'-0½"	14'-8⅜"	19'-11¾"	20'-0½"	19'-8⅜"			
31	15'- 5¾"	15'-6½"	15'-2⅜"	20'- 7¾"	20'-8½"	20'-4⅜"			
32	15'-11¾"	16'-0½"	15'-8⅜"	21'- 3¾"	21'-4½"	21'-0⅜"			
33	16'- 5¾"	16'-6½"	16'-2⅜"	21'-11¾"	22'-0½"	21'-8⅜"			
34	16'-11¾"	17'-0½"	16'-8⅜"	22'- 7¾"	22'-8½"	22'-4⅜"			
35	17'- 5¾"	17'-6½"	17'-2⅜"	23'- 3¾"	23'-4½"	23'-0⅜"			
36	17'-11¾"	18'-0½"	17'-8⅜"	23'-11¾"	24'-0½"	23'-8⅜"			
37	18'- 5¾"	18'-6½"	18'-2⅜"	24'- 7¾"	24'-8½"	24'-4⅜"			
38	18'-11¾"	19'-0½"	18'-8⅜"	25'- 3¾"	25'-4½"	25'-0⅜"			
39	19'- 5¾"	19'-6½"	19'-2⅜"						
40	19'-11¾"	20'-0½"	19'-8⅜"						
41	20'- 5¾"	20'-6½"	20'-2⅜"						
42	20'-11¾"	21'-0½"	20'-8⅜"						
43	21'- 5¾"	21'-6½"	21'-2⅜"						
44	21'-11¾"	22'-0½"	21'-8⅜"						
45	22'- 5¾"	22'-6½"	22'-2⅜"						
46	22'-11¾"	23'-0½"	22'-8⅜"						
47	23'- 5¾"	23'-6½"	23'-2⅜"						
48	23'-11¾"	24'-0½"	23'-8⅜"						
49	24'- 5¾"	24'-6½"	24'-2⅜"						
50	24'-11¾"	25'-0½"	24'-8⅜"						

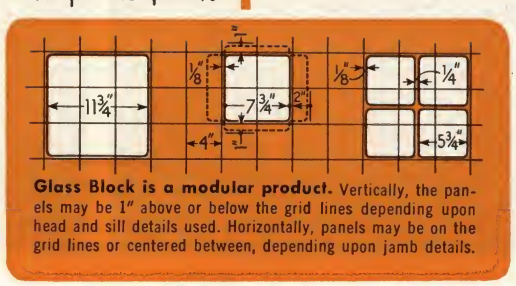
Chase Construction

Maximum Panel Length.....25 Ft.
Maximum Panel Height.....20 Ft.
Maximum Panel Area 144 Square Ft.

Wall Anchor Construction

Maximum Panel Length.....10 Ft.
Maximum Panel Height.....10 Ft.
Maximum Panel Area 100 Square Ft.

All Mortar Joints are ¼"



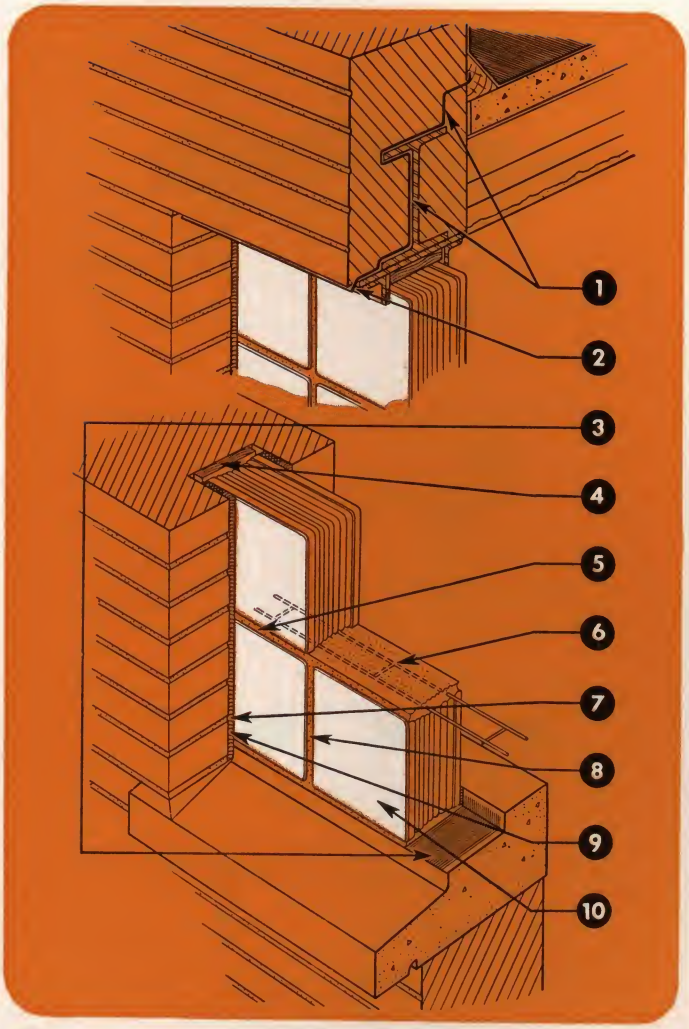
Glass Block is a modular product. Vertically, the panels may be 1" above or below the grid lines depending upon head and sill details used. Horizontally, panels may be on the grid lines or centered between, depending upon jamb details.

curved panel laying radii

Square blocks of nominal six-inch, eight-inch or twelve-inch size can be laid to several radii by varying the thickness of the mortar joints. The table below shows the radii which can be laid when the inside joint thickness is not less than one-eighth inch and the outside joint thickness is not over three-quarters inch. The number of blocks shown is for a ninety-degree arc.

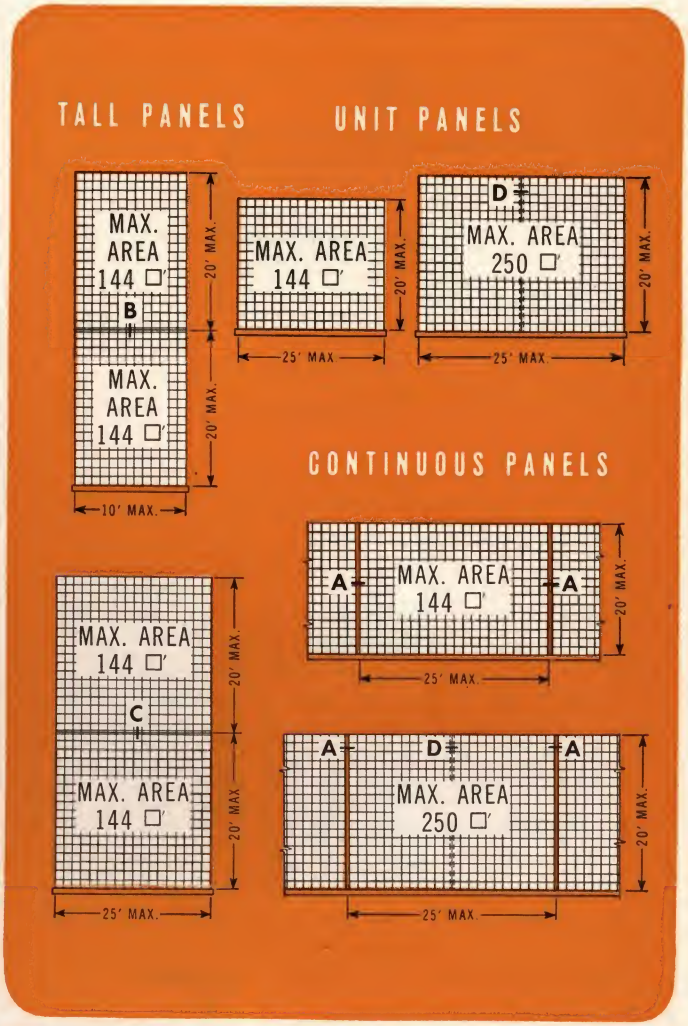
	Outside Radius	Number of Units	Joint Thickness	
			Inside	Outside
7¾" BLOCKS	5'-9" Min.	13	⅛"	⅝"
	6'-4"	14	⅜"	¾"
	6'-8"	15	¼"	⅝"
	7'-0"	16	⅛"	½"
	7'-5"	17	⅛"	7/16"
	7'-8"	17	7/16"	¾"
	8'-0"	18	5/16"	⅝"
	8'-4"	19	¼"	½"
	No Max.	—	—	—
5¾" BLOCKS	4'-3" Min.	13	⅛"	⅝"
	4'-8"	14	⅛"	½"
	5'-0"	15	⅛"	½"
	5'-4"	16	⅛"	½"
	5'-8"	17	3/16"	½"
	6'-0"	18	3/16"	½"
	6'-4"	19	3/16"	½"
	6'-8"	20	¼"	½"
	7'-0"	21	¼"	½"
	7'-4"	22	¼"	½"
	No Max.	—	—	—
11¾" BLOCKS	8'-6" Min.	13	⅛"	⅝"
	No Max.	—	—	—

how to install



1. Install through-wall flashing in all masonry walls above glass block.
2. Drip flashing to exterior.
3. Apply a coat of O-I Asphalt Emulsion to the sill.
4. Install O-I Expansion Strips at jambs and heads of openings.
5. Lay glass block, using full mortar joints. Mortar mix 1 part Portland Cement, 1 part hydrated lime and 4 parts sand to a stiff consistency.
6. Install O-I Wall Ties continuous in horizontal joints 24″ o.c.
7. Anchor panels at jambs by setting into rebates formed by chase, or use O-I Anchors every third horizontal joint.
8. Tool joints and give blocks preliminary cleaning before mortar reaches final set.
9. Pack oakum on both sides of chases at jambs and head. Calk these joints with mastic to depth of at least ⅜″.
10. Give panel final cleaning. All blocks have a special, transparent chemical finish for quick and easy cleaning.

panel size and area



Chase Construction

Sizes: Max. Length—25 Ft., Max. Height—20 Ft. Panels over these limiting dimensions shall be divided by mullions, detail "A" or shelf angles, details "B" or "C", to provide expansion joints and reinforcement against wind pressure. (Page 10).

Areas: 144 Sq. Ft. (without stiffener)—250 Sq. Ft. (using stiffener detail "D"). Panels over these areas to be reinforced with mullions; detail "A", or shelf angles, details "B" or "C". (Page 10).

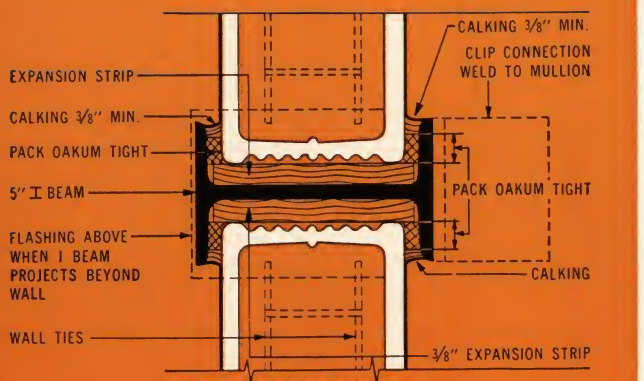
Wall Anchor Panels

Wall anchor-type panels (panels not set in chases at jambs) should not be more than 10 feet wide or 100 square feet in area.

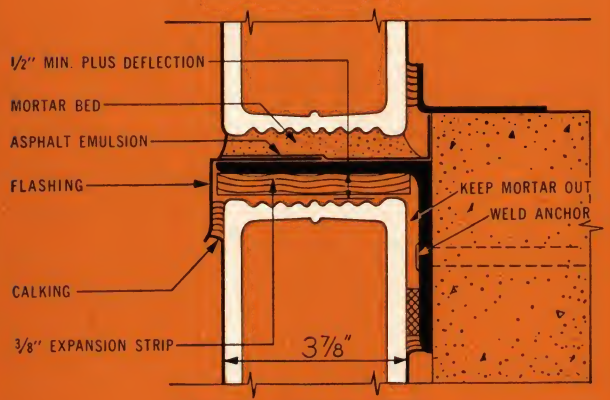
Fire-Retardant Panels

To qualify for Underwriters' Laboratories light fire retardant rating for Class F Openings, panels must not exceed 12 feet in width or height nor 120 square feet in area. Special details required for fire-retardant construction. Available upon request.

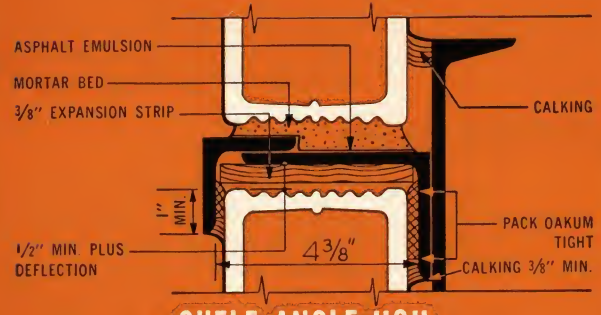
reinforcing large panels



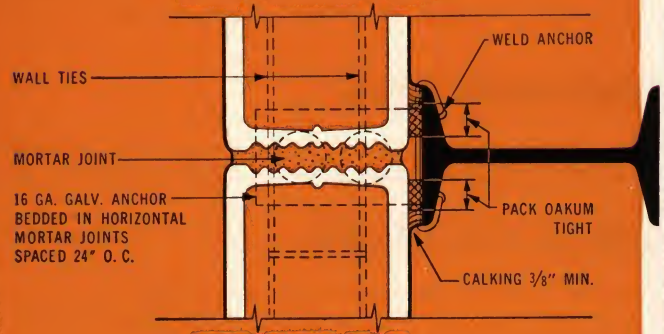
MULLION "A"



SHELF ANGLE "B"

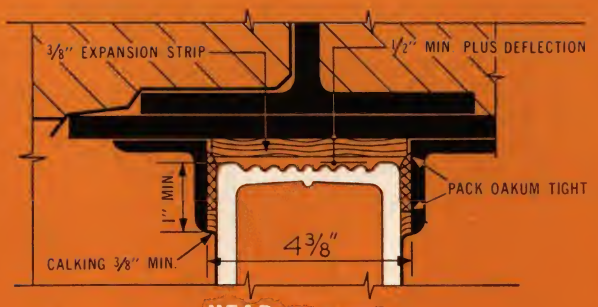


SHELF ANGLE "C"

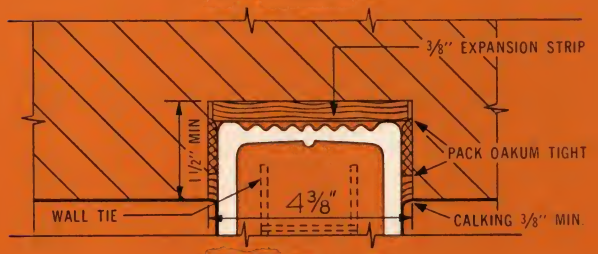


STIFFENER "D"

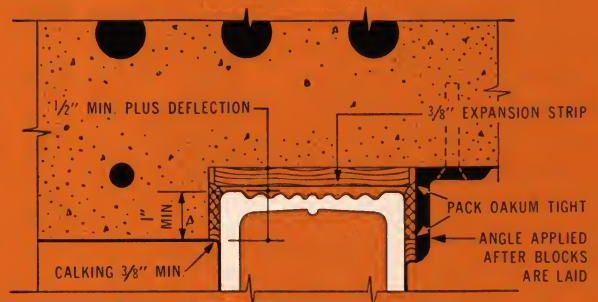
12" walls



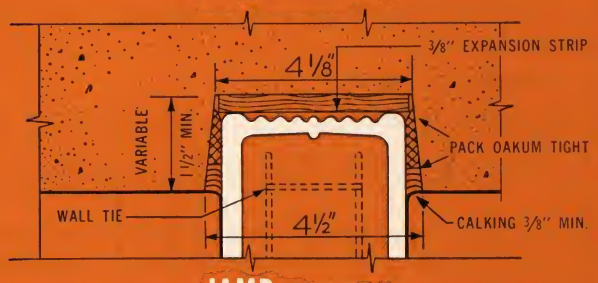
HEAD (Masonry) *



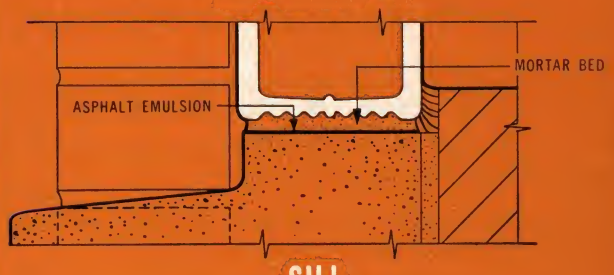
JAMB (Masonry)



HEAD (Concrete)



JAMB (Concrete)

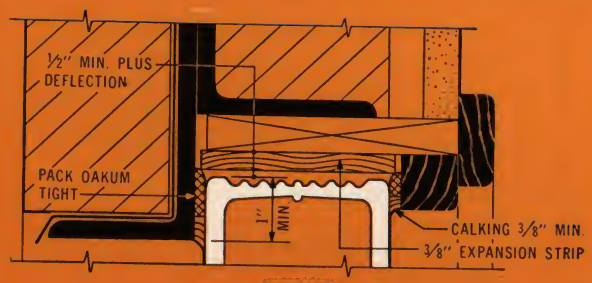


SILL

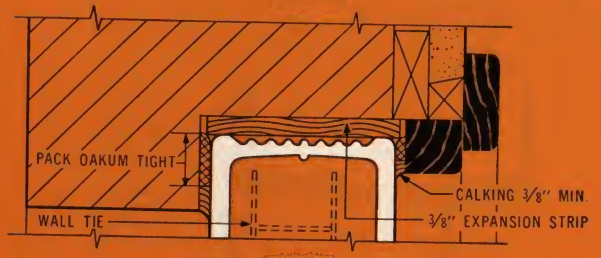
***Flash head through wall as shown in detail on Page 7.**

Scale 3"=1'-0"

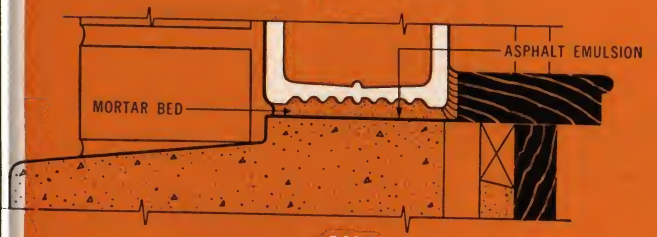
8″ walls



HEAD *



JAMB



SILL



HEAD *



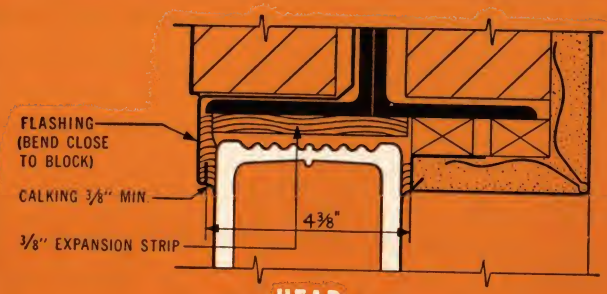
JAMB



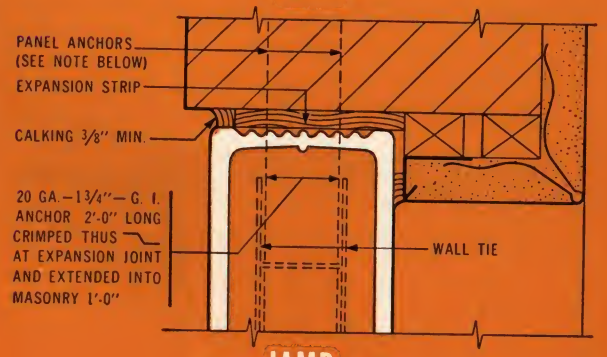
SILL

*Flash head through wall as shown in detail on Page 7.

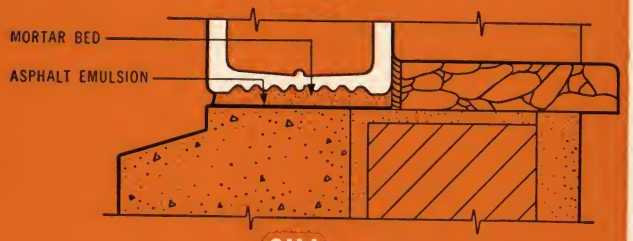
small panel details



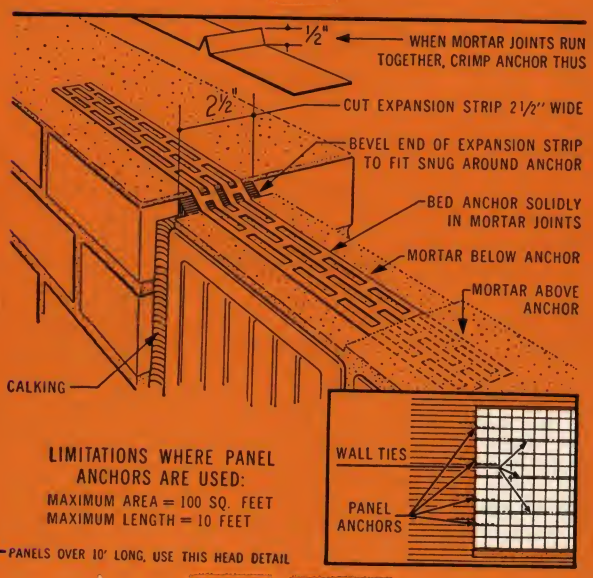
HEAD *



JAMB



SILL

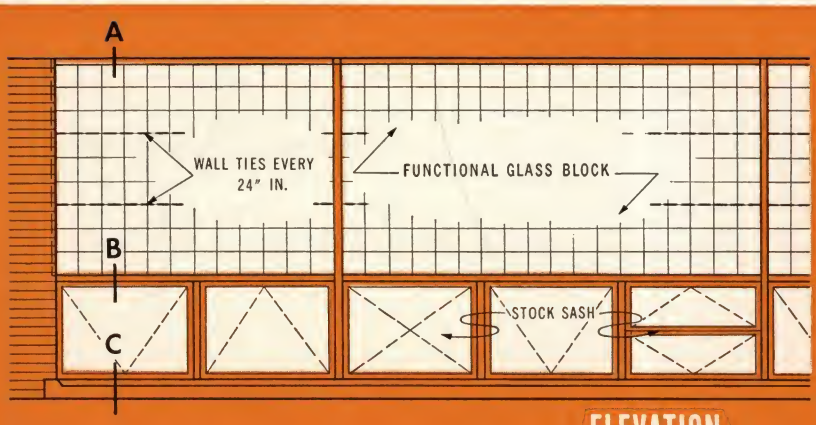


PANEL ANCHOR

*Flash head through wall as shown in detail on Page 7.

Scale 3″ = 1′-0″

glass block and ribbon window standard opening sizes



ELEVATION

The Glass Block and Ribbon Window Standards Committee has established standards for details and sizes of openings. These two pages show standard opening heights and widths which will receive glass block and ribbon windows. Recommended limiting areas and sizes are as follows:

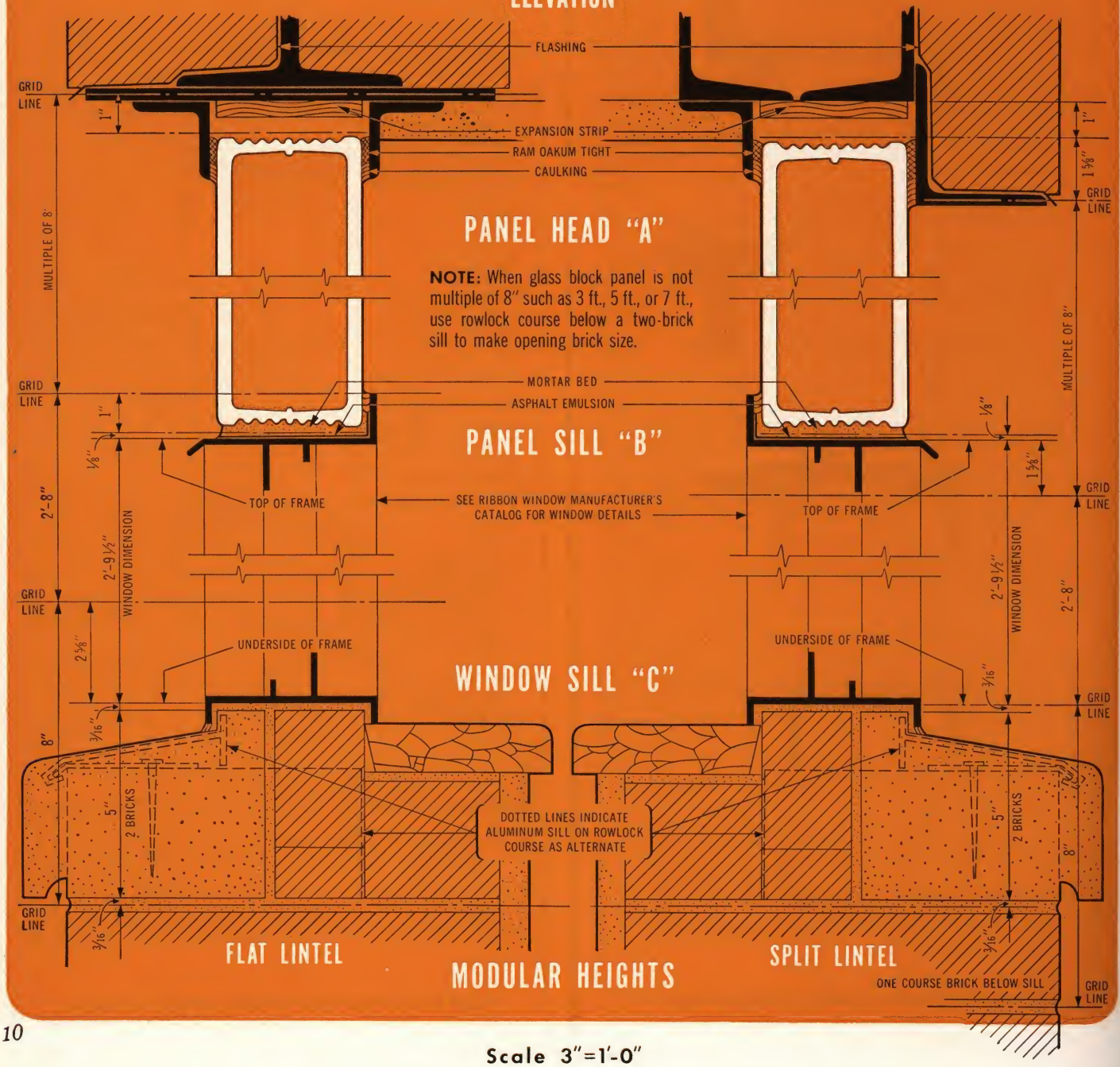
Max. opening length: 18′–0″

Max. area: 144 □′

(includes glass block panel area plus half of ribbon window area)

Max. ventilator size: 4′–0″ x 2′–9½″ high.

(windows of greater height shall have two or more ventilators)

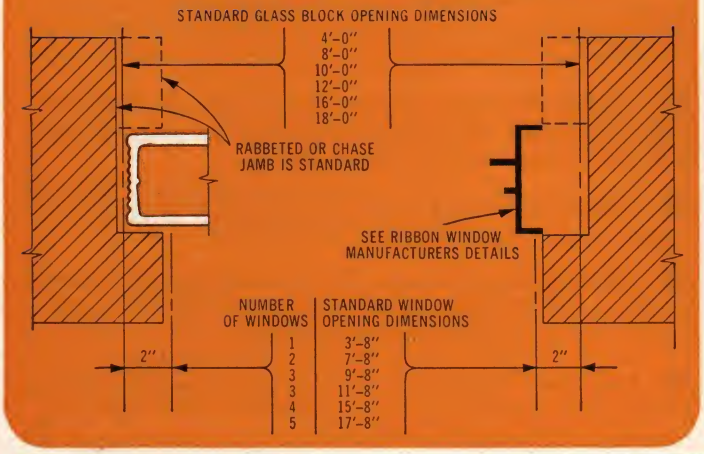


Scale 3″=1′-0″

glass block and ribbon window standard opening sizes

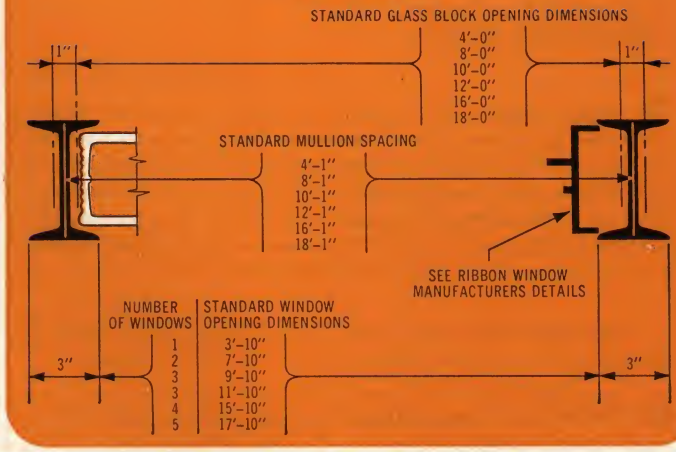
LAYOUT OF OPENING WIDTHS

CASE I – Simple Masonry opening
(NO MULLIONS THROUGH GLASS BLOCK)



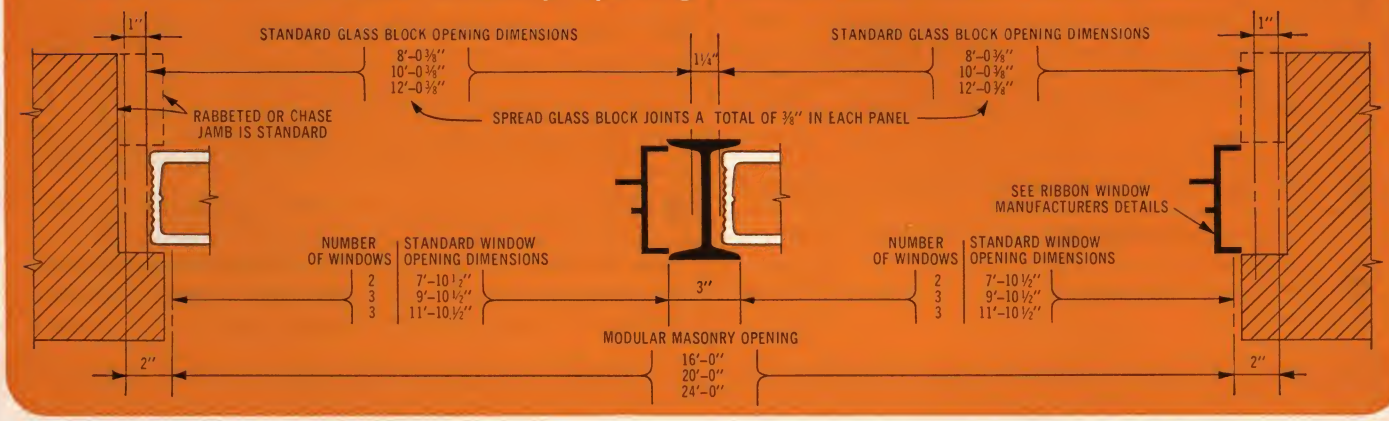
NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
1	3'–8"
2	7'–8"
3	9'–8"
3	11'–8"
4	15'–8"
5	17'–8"

CASE II – Continuous Panels
(BETWEEN I-BEAM MULLIONS)



NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
1	3'–10"
2	7'–10"
3	9'–10"
3	11'–10"
4	15'–10"
5	17'–10"

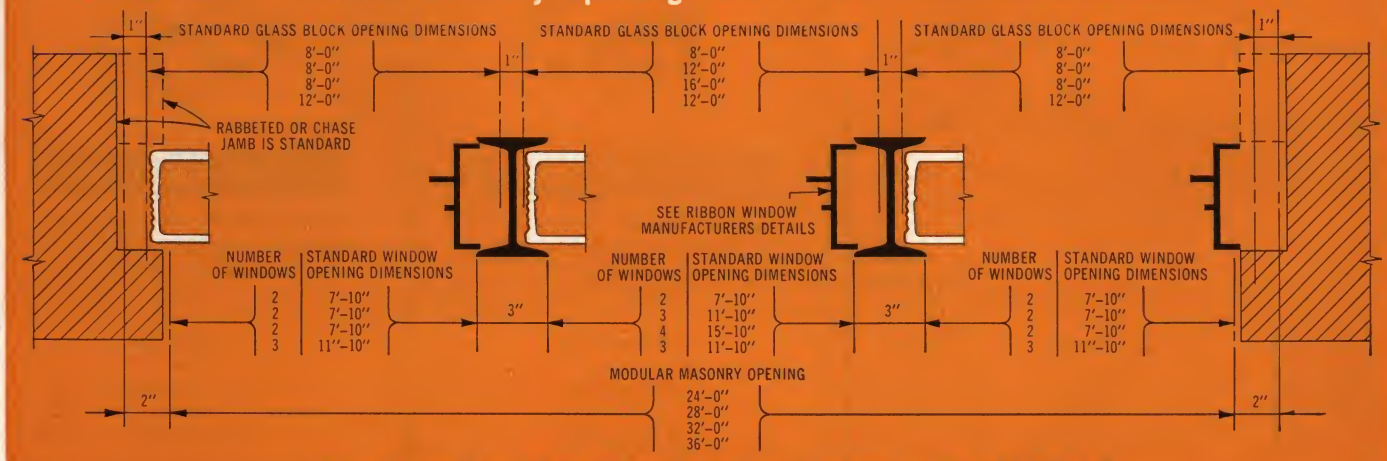
CASE III A – Divided Masonry opening (WITH ONE MULLION THROUGH GLASS BLOCK PANEL)



NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'–10½"
3	9'–10½"
3	11'–10½"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'–10½"
3	9'–10½"
3	11'–10½"

CASE III B – Divided Masonry opening (WITH TWO MULLIONS THROUGH GLASS BLOCK PANELS)



NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'–10"
2	7'–10"
2	7'–10"
3	11"–10"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'–10"
3	11'–10"
4	15'–10"
3	11'–10"

NUMBER OF WINDOWS	STANDARD WINDOW OPENING DIMENSIONS
2	7'–10"
2	7'–10"
2	7'–10"
3	11"–10"

***See Pages 8 and 9 for Glass Block Jamb Details in 8" and 12" Walls.**

closed specifications

General Conditions of the contract are hereby made, by reference, a part of this specification.

Scope: This work consists of furnishing all materials, labor and services necessary for the complete installation of all glass block as shown on the drawings or as specified hereinafter.

MATERIALS

a **Glass Block** shall be hollow partially evacuated units of pressed glass hermetically sealed at high temperatures, as manufactured by Kimble Glass Company. The mortar-bearing surfaces shall be precoated with an alkali and moisture-resistant, grit-bearing material. All glass blocks (except ceramic-faced) shall have O-I "MAGICLEAN" face finish to prevent adhesion of the mortar to the faces.

Glass Block shall be Owens-Illinois Design No. 00 (Specify designs, sizes and locations) as shown on the drawings.

b **Cement** shall be waterproof, high early-strength Portland cement complying with A.S.T.M. Specifications C150-49 Type III.

c **Lime** shall be high-calcium hydrated lime complying with A.S.T.M. Specifications C6-31. Magnesium or dolomitic type lime may be used if hydrated under pressure so that it does not contain more than 8% by weight of unhydrated oxides, and conforms to A.S.T.M. Spec. C207-49, Type S.

d **Sand** shall be free from injurious amounts of organic or other foreign materials. It shall be uniformly graded from fine to coarse with 100% passing a No. 12 sieve.

e **Water** shall be clean and devoid of salts or other injurious elements.

f **Mortar-Mix** shall be composed of 1 part Portland cement, 1 part lime and 4 parts sand, measured by volume. It shall be mixed to a consistency as stiff and dry as possible and still retain good working characteristics. Do not use setting accelerators or anti-freeze compounds.

g **Reinforcing Wall Ties** shall be O-I galvanized wire ties as furnished by Kimble Glass Company. Ties are to run continuously with ends lapped 6" and are to be installed in horizontal mortar joints which are approx. 24" apart.

h **Asphalt Emulsion** shall be O-I emulsion as furnished by Kimble Glass Company and shall be a clay type suspended in water, It shall be used without diluting.

i **Oakum** shall be a non-staining type treated against dry rot and mildew, as approved by the architect.

j **Calking,** where indicated on the drawings, shall be first quality, non-hardening and non-staining mastic of gun grade consistency, as approved by the architect.

k **Expansion Strips** shall be O-I expansion strips made of fibrous glass bonded together in strips 4⅛" x ⅜" x 25", as furnished by Kimble Glass Company.

ERECTION

a Panels are to be of size and shape shown on the drawings. Openings for panels shall be formed as detailed and are to be built so that panels will be properly supported against wind pressure. All sills which receive glass block are to be coated with a heavy layer of asphalt emulsion at least 1/16" thick, the coat being allowed to dry before laying the first mortar bed.

b Install expansion strips at panel jambs and heads, below shelf angles, at mullions and at any other location shown on the drawings. Strips are to run continuously so that the edges of the glass block panel do not come in contact with the building structure, except at sills.

OWENS-ILLINOIS ACCESSORIES

***Approximate quantity to lay 1000 pieces block**

Based upon a panel 10' x 10' (100 Sq. Ft.). Conditions vary widely; quantities not guaranteed.



ASPHALT EMULSION

Asphalt dispersed in water. Apply to sill to break bond between sill and mortar.



EXPANSION STRIPS

Use at jambs and heads of panels. A resilient glass fiber pad 4⅛" x ⅜" x 25".

	VOLUME OF MORTAR	ASPHALT EMULSION	EXPANSION STRIPS
* 5 3/4" blocks	22 c.f.	1/6 gallon	38 pieces
* 7 3/4" blocks	14 c.f.	1/3 gallon	67 pieces
* 11 3/4" blocks	11 c.f.	2/3 gallon	150 pieces
how packed		1, 5 gallons, quarts	72 pcs. (150 lin. ft.) to cart'n

c Blocks shall be laid plumb, true and level with all mortar joints filled completely with mortar. Do not furrow or feather joints. Each block shall be laid by shoving it tightly against the adjacent one so that the mortar fills all the corrugations and bonds with both blocks. Do not move blocks apart to widen the joints after they are laid. If necessary to realign the block, remove it and put on more mortar and re-lay. Exposed thickness of mortar joints shall be ¼ " unless otherwise shown on drawings. Do not allow mortar to lodge in expansion joints.

O-I functional type Blocks Nos. 80, 80-F, 80G, and 80GF shall be laid in the wall exactly as marked, TOP-INSIDE.

d Wall ties are to be installed in joints as heretofore specified, imbedding them completely in mortar.

e Tool the exposed surfaces of the mortar joints to a slightly concave, smooth, non-porous surface after mortar reaches its initial set. Tool the mortar back ⅛ " from the face to expose the square shoulders on the glass. Use a ⅜ " diameter jointer.

f Oakum and Calking. Pack oakum between the faces of the block and the sides of the chases after the mortar has set. Ram the oakum back at least ⅜ " from the finished surface. Fill the recesses thus formed at jambs and head of panels with mastic calking compound, both inside and out, to provide tightly sealed panels.

g Clean all loose mortar from the panel as the mortar joints are tooled. Final cleaning shall not be done until the mortar has reached its final set. Do not use acid on mortar joints.

Note: If final cleaning is not in this contract specify by "others".

Flashings (Specify under "Masonry" or "Sheet Metal".) Lintels, spandrels or parapets above glass block panels shall be properly and completely flashed to prevent entrance of water.

Alternate Specifications For Anchored Panels

This specification to be used where glass block panels are not set in chases or frames at the jambs. This method not recommended for large panels or those subjected to severe conditions. (See Details.)

Add the following paragraph to those listed under "Materials" above:

MATERIALS

Panel anchors shall be O-I anchors (as furnished by Kimble Glass Company) made of 20 gauge perforated steel strips, 24" long by 1¾ " wide, galvanized after forming. They are to be used as shown on the drawings, located in horizontal mortar joints as frequently as wall ties, but not in the same course and not less than two to each jamb.

ERECTION

Copy paragraphs A, B, C, D, E and G under "Erection". Add the following sentence to paragraph B:

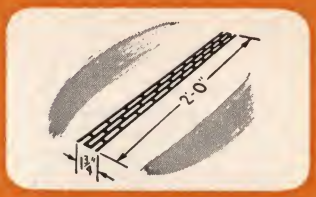
Cut standard expansion strips to width shown on drawings to provide at least ½ " space for calking exposed expansion joints.

Add the following paragraph B1 after paragraph B:

B1. Panel Anchors. Anchors shall be either bolted to or extended not less than 10" into masonry jambs. The balance of the anchor is to be imbedded in the horizontal mortar joints of the glass block panels, crimping the anchor at the expansion joint to permit movement. Do not use wire wall ties as anchors.

Substitute the following for paragraph F:

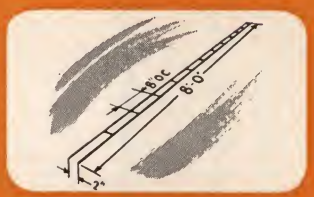
Calking. Clean all mortar from the expansion joints and point with mastic calking compound to a depth of not less than ½ ".



PANEL ANCHORS

Anchor panels where no chase is used. Imbed in, nail or bolt to jambs. 20 ga. galv. 1¾ " x 24".

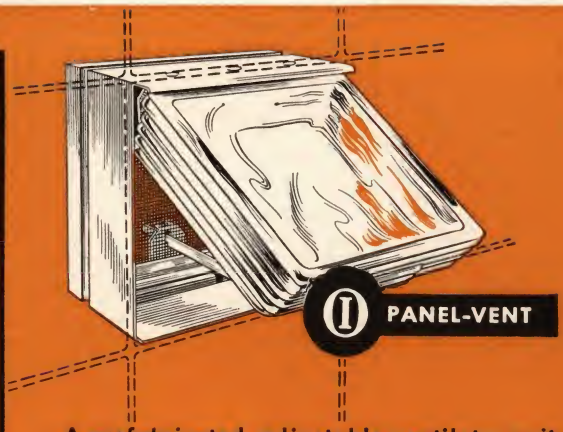
20 pieces
36 pieces
80 pieces
25 to bundle



WALL TIES

To reinforce panels. Imbed in horizontal mortar joints every 24" vertically, regardless of size of block.

13 pieces
23 pieces
100 pieces
8'0" long, 50 to bundle



A prefabricated, adjustable ventilator unit made with actual half of standard O-I block. Frame is extruded aluminum; unit is furnished with weathertight gasket, removable screen. Panel-Vent is laid up in mortar along with rest of panel. Available in matching block designs, but only in the nominal 8" size.

Underwriters' Approval

Owens-Illinois Glass Block panels have Underwriters' Laboratories approval for panels subject to light fire exposure (Class F Openings, 45 minutes). 6″ and 8″ Owens-Illinois blocks are approved. Fire panels must be set in masonry chases and have Owens-Illinois wire wall ties in each course. Either steel or reinforced concrete lintels may be used. See Page 7 for limiting sizes.

Weight Per Square Foot

The weight of Owens-Illinois panels installed is approximately 20 lbs. per sq. ft. For design purposes this is the same for all sizes of block.

Mortar Bond

Owens-Illinois Glass Blocks have a resilient bond coat to insure tight joints between the mortar and glass.

Face Finish

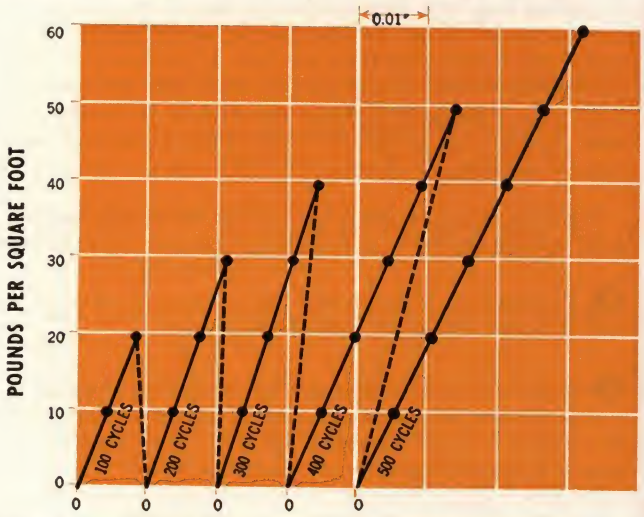
Both faces of all (except ceramic-faced) Owens-Illinois glass block have a transparent nonremovable chemical finish to prevent adhesion of the mortar to the glass. This reduces time and labor required for cleaning the panels.

Structural Strength

Panels of Owens-Illinois Glass Block will carry 400 to 600 lbs. per sq. in. of gross bearing area in direct compression. Although the strength of glass is high in direct compression, panels of glass block should not be used for load-bearing purposes. They will carry their own weight and combined stresses due to wind load with an adequate factor of safety for all recommended panel heights and widths. See page 9.

Lateral Strength

Wind pressure tests show that Owens-Illinois Glass Block panels constructed in accordance with standard specifications and details and within the size limits shown on Page 9 will safely resist wind loads of 20 lbs. per sq. ft.



Glass Block Panel Elasticity: An O-I glass block panel tested at Purdue University proved entirely elastic under pressure of 40 lb. per sq. ft. (equal to wind velocity of 115 m.p.h.). Final failure occurred at pressure equal to a 174 m.p.h. wind. The chart above shows successive results at end of each 100 cycles of pressure—up to 500 cycles.

Solar Heat Gain

Total Instantaneous Rates of Heat Gain of Owens-Illinois Glass Block Panels in B. T. U./hr./sq. ft.

Sun Time	*Dry Bulb Temp.*	*Block Design Nos. 307, 316, 331, 370*							*Block Design No. 340*						
		NE	E	SE	S	SW	W	NW	NE	E	SE	S	SW	W	NW
8 am	77	57	113	70	8	6	6	6	55	109	65	8	6	6	6
9 am	80	40	94	76	17	8	9	8	39	85	71	16	8	9	8
10 am	83	22	67	69	29	10	12	11	21	65	67	28	10	12	11
11 am	87	14	44	56	39	14	14	13	14	43	55	39	14	14	13
12 noon	90	16	24	41	42	24	16	15	16	24	41	42	24	16	15
1 pm	93	18	22	23	46	49	27	17	18	22	23	46	48	26	17
2 pm	94	18	23	18	42	74	59	19	18	23	18	41	72	57	20
3 pm	95	18	23	18	33	93	102	37	18	23	18	32	88	93	36
4 pm	94	17	21	17	23	94	136	66	17	21	17	23	89	127	64
5 pm	93	16	19	16	19	81	142	91	16	19	16	19	77	132	86
6 pm	91	13	15	13	15	54	104	81	13	15	13	15	52	101	78
ASHAE Type No.					I							II			

Note: For humid industrial atmospheres these figures may be reduced by 20 per cent for all types of glass block in east and west walls and 5 per cent in south walls.

Corrections for deviations from indoor and outdoor design temperatures: For each degree the design room temperature exceeds 75 degrees F., subtract 0.5 B. T. U. from each value; for each degree the design outdoor temperature exceeds 95 degrees F., add 0.5 B. T. U.

Block Design No. 80-F

EAST	SOUTH	WEST
70	36	75

The above figures show the approximate instantaneous rates of heat gain of O-I solar-selecting glass block No. 80-F. The figures show the maximum heat gain for each of the three sun exposures; East, West and South. The maximum occurs on the East at 9:00 A.M., on the South at 1:00 P.M. and on the West at 4:00 P.M. The above data are in B.T.U. per hour per square feet for clear atmospheres for August 1st, 40° North latitude and for an 80° indoor temperature. The figures are results of calculations since the solar-selecting blocks have not been tested for solar heat gain by the ASHAE Laboratory.

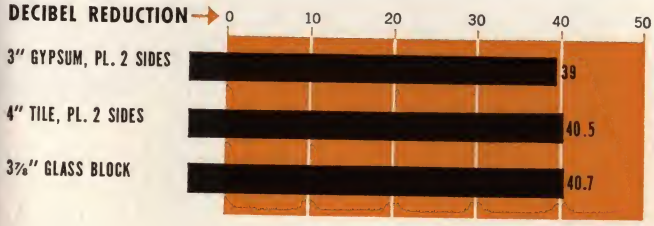
For Clear Atmospheres, August 1, 40 degrees North latitude, 75 degrees F. indoor temperature.

Data from test by ASHAE Laboratory and reported in the "GUIDE".

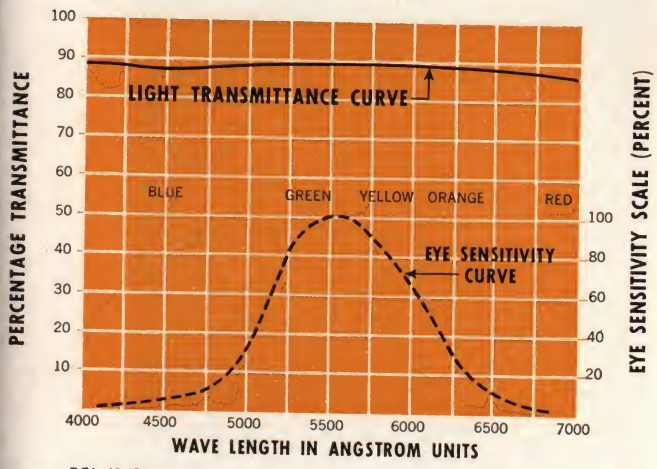
OWENS-ILLINOIS GLASS BLOCK

Sound Reduction

Glass block panels have an average sound reduction factor of 40.7 decibels over nine frequencies (128 to 4096 cycles).



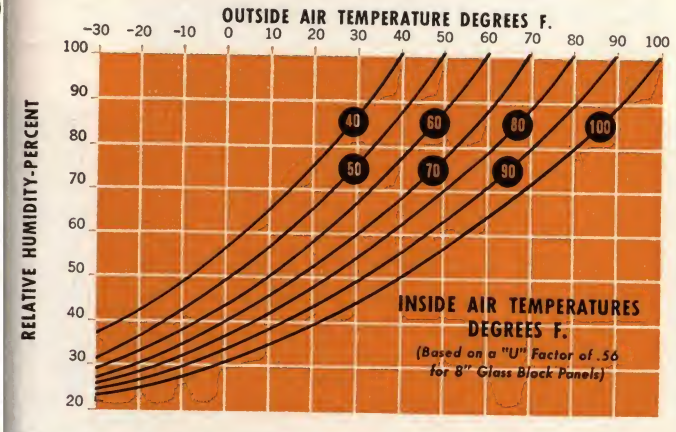
Spectral Transmittance



Note: *Visibility of average normal eye ranges from 4100 to 6900 angstrom units as shown on eye sensitivity curve.*

This curve shows that light through the glass in O-I clear Glass Blocks is relatively true in color to the original light, the per cent transmittance being about constant for all wave lengths.

Surface Condensation

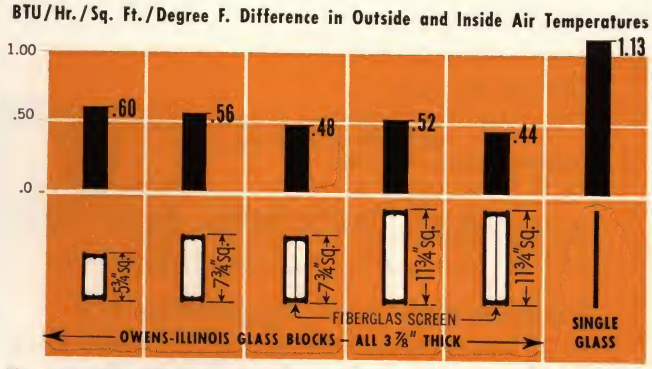


This chart shows outside air temperatures required to form condensation on the room side surface of Owens-Illinois Glass Block panels at various inside temperatures and relative humidities. Because of higher insulating value than single-glazed windows, glass block permit higher humidities without condensation.

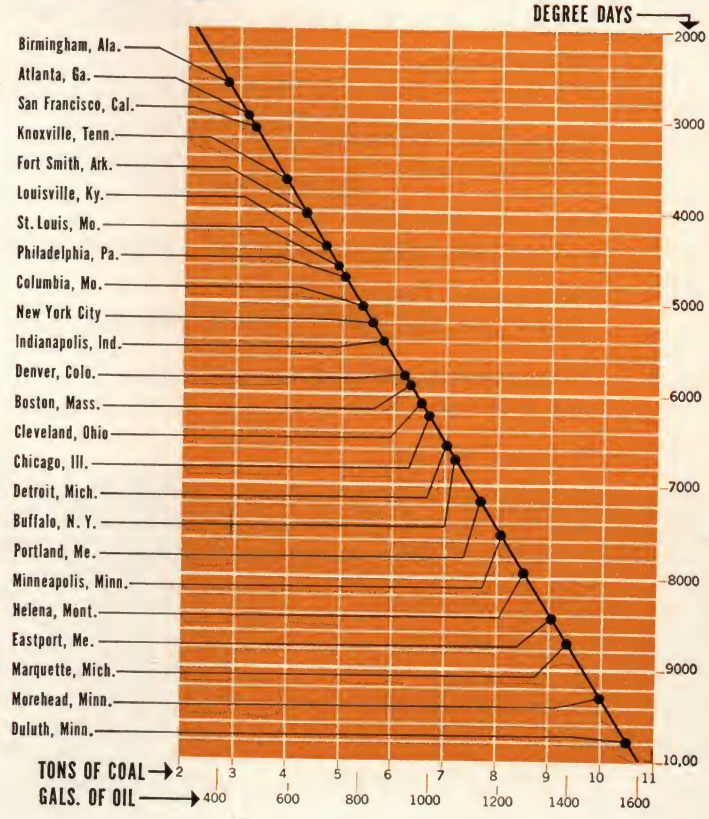
For the same per cent relative humidity, condensation will not occur on glass block panels until the outside air has reached a much lower temperature than necessary for single-glazed windows.

Heat Loss

The coefficients of heat transmission, U factor, for Owens-Illinois Glass Block walls are shown below for various designs and sizes of blocks. All O-I Blocks are hermetically sealed, providing a dead air space with ⅔ vacuum. This results in the low conductivity of the walls. Blocks with fiber glass inserts have slightly lower U factors as shown.



Fuel Savings



This chart shows fuel savings which can be attained by using panels of O-I Glass Block instead of single-glazed metal windows. Figures based on glass areas of 1,000 sq. ft. These calaculations based upon heat transmission and infiltration through glass areas only

Calculations based upon the following factors: U-value Sash 1.13; U-value Glass Block, 0.56; 12,000 BTU per pound of coal burned at 65 per cent efficiency; 141,000 BTU per gallon of oil burned at 70 per cent efficiency.



DISTRICT OFFICES

Atlanta, Georgia
West Peachtree Building.....TRinity 5-8561

Boston, Massachusetts
1206 Statler Office Building.....HUbbard 2-9085

Chicago, Illinois
20 North Wacker Drive, Room 2810. FInancial 6-6822

Cincinnati, Ohio
1216 East McMillan Street.....PLaza 1-6400

Dallas, Texas
404 Tower Petroleum Building.....RIverside 1-4281

Milwaukee, Wisconsin
715 North Van Buren, Room 910...BRoadway 1-0760

Minneapolis, Minnesota
760 Rand Tower..... FEderal 3-2217

New York, New York
405 Lexington Avenue..... OXford 7-9100

Philadelphia, Pennsylvania
2234 P.S.F.S. Building..... WAlnut 2-0432

Pittsburgh, Pennsylvania
666 Washington Road.....LOcust 3-3552

St. Louis, Missouri
Continental Building.....JEfferson 1-7474

San Francisco, California
1485 Bayshore Boulevard.....JUniper 6-3234

Seattle, Washington
824 John Street..... MAin 4-0775

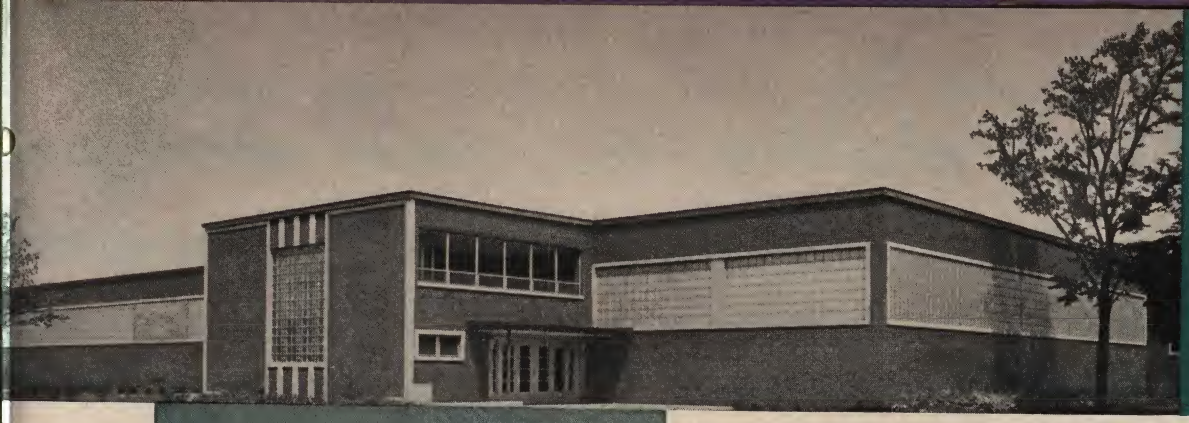
Toledo, Ohio
Owens-Illinois Building..... CHerry 2-6543



OWENS-ILLINOIS GLASS BLOCK IS MANUFACTURED AND SOLD BY KIMBLE GLASS COMPANY, A SUBSIDIARY OF OWENS-ILLINOIS

GLASS BLOCK, THINLITE AND TOPLITE
THREE (O) PRODUCTS

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO



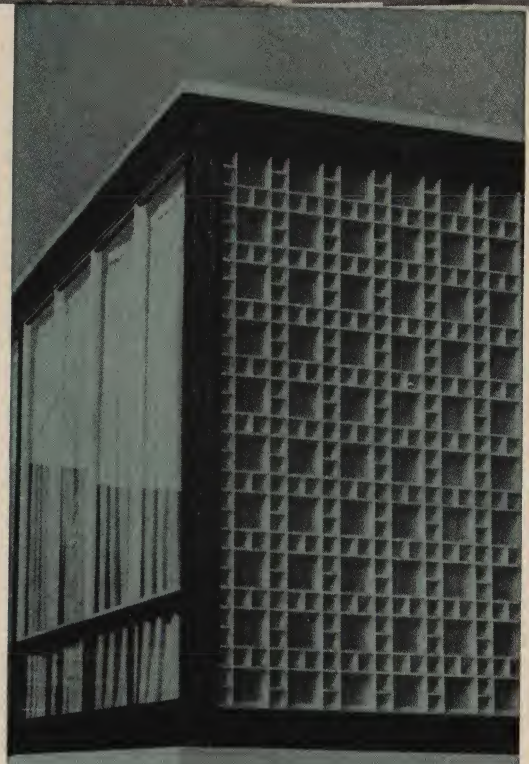
A.I.A. FILE NO. 10-F

7b
Pi

pc glass blocks

for commercial - industrial - educational - residential buildings

- controlled daylighting
- low maintenance
- high insulation value
- privacy and protection
- eliminate surface condensation









PITTSBURGH pc CORNING

PC glass blocks offer many advantage
walls and industrial, educational an

Basically, there are two types of PC Glass Blocks—Functional and Decorative. *Functional* blocks direct or diffuse daylight and thus make it work for the occupants by providing *controlled* lighting throughout the rooms of a structure. *Decorative* blocks, as the name implies, are used for decorative applications or as accents in the design of a structure. And just recently, Pittsburgh Corning has developed Color Glass Blocks, available in twelve colors and three sizes which greatly extend the design versatility of this material. (For complete information on PC Color Glass Blocks, write for Booklet GB-110.)

FOR WINDOW AREAS

benefits

insulation plus low maintenance

PC Glass Blocks have good thermal insulating value (page 6) which helps reduce heating and cooling costs and almost eliminates surface condensation. This fact, coupled with the low maintenance cost (i.e., little washing, sash painting, reputtying, etc.), makes glass block ideal for both sash replacement and curtain wall use as well as for decorative applications.

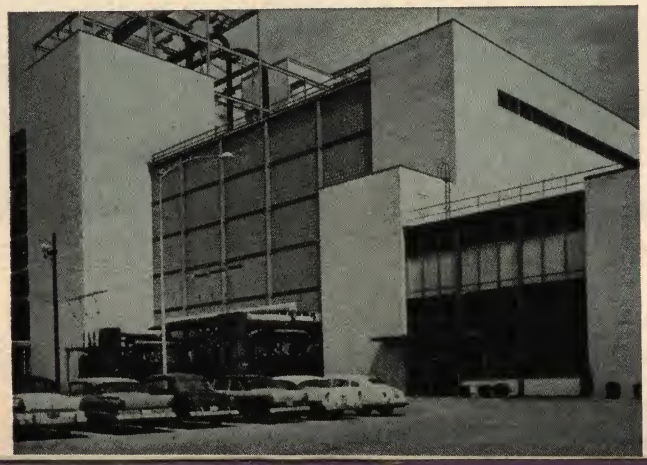
With proper selection of patterns (pages 4–5) the desired degree of privacy can be built right into the structure without expensive drapings and shading.

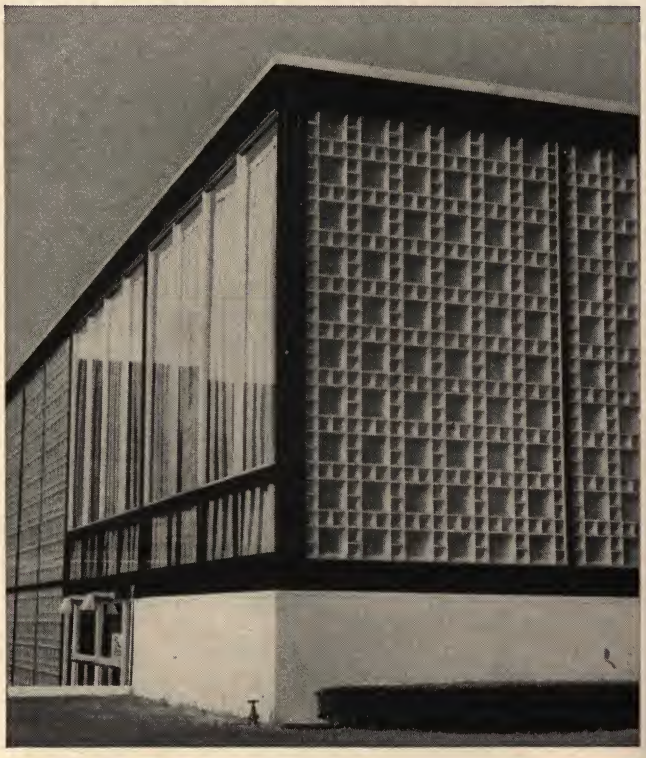
security and low cost

These two considerations are important. Glass blocks, being difficult to break, deter against entry. One plant, for instance, was able to reduce the number of armed guards considerably and eliminate protective fences by installing glass blocks in place of conventional windows.

A prime consideration in today's construction economy is one of cost. No matter what the installation—a simple panel replacing a window, or an entire curtain wall—glass blocks offer many advantages at less cost than other building materials. Why? Because they are installed by only one trade—the masons—and the inside and outside of the wall or panel are finished in one operation.

Cromby Station, Philadelphia Electric Company, Philadelphia
Consulting Architects: Harbeson, Hough, Livingston and Larson A.I.A., Philadelphia, Pennsylvania





Corning Glass Center
Corning, New York
Architects: Harrison and Abramovitz, A.I.A., New York

FOR CURTAIN WALLS

In the curtain wall concept of today's architecture, certain basic design considerations should be answered. When these considerations include color and texture, reasonable cost and low maintenance, good insulation value, privacy and protection, and controlled daylighting, a curtain wall of PC Glass Block may be the solution.

both window and wall combined

No other material offers both *controlled daylighting* and a curtain wall material within itself. A range of eight PC functional glass blocks actually permits the selection of just the correct block to match the application . . . while at the same time providing the sharp, clean appearance desired in contemporary building.

creativity in design

To these advantages inherent in glass block, Pittsburgh Corning has recently added a third dimension . . . that of color. The addition of ceramic color-faced blocks is particularly important in the design of a curtain wall. The architect can now create patterns of color while retaining integrity of material. Consider glass block, Pittsburgh Corning Glass Block, when designing your next curtain wall.

(For more data on PC Glass Block Curtain Walls, see our insert in Section 3e/Pi of Sweet's Catalog or write for Booklet GB-110.)

or window areas, curtain ommercial sash replacement

FOR SASH REPLACEMENT

Think a minute . . . What is the most distinguishing mark of an old, factory-type building? Usually . . . the windows.

And windows are an expensive maintenance item. They must be continually repainted, and it doesn't take long for the layers of paint to blister and crack—particularly in areas of acid and industrial fumes. Still further, the sash must be calked or puttied regularly to prevent heat loss . . . a costly waste! Finally, standard sash may rust or rot, causing warpage and window breakage. All this, of course, detracts from the appearance of the building and reduces property value.

Two more serious drawbacks overshadow all of the above items: uncontrolled daylighting comes through standard sash and heat loss is very high.



Note the controlled lighting which glassblock panels afford. This replacement installation is at S. Twitchell Company, Camden, New Jersey.

Why not investigate the advantages of using PC Glass Block on your next sash replacement job? Illustrated are two recent "before" and "after" replacement jobs. Remember, you benefit not only from improved appearance, but also lower operational costs. With PC Glass Blocks used for sash replacement, you enjoy:

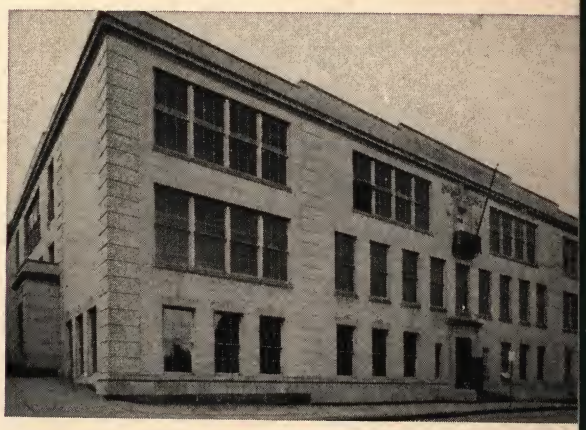
Ease of Installation
(Will fit most existing window openings)

Better Daylighting
(Improved worker efficiency)

Lower Heating and Cooling Costs
(Can be cut as much as 40%)

Lower Maintenance Costs
(As much as 90%)

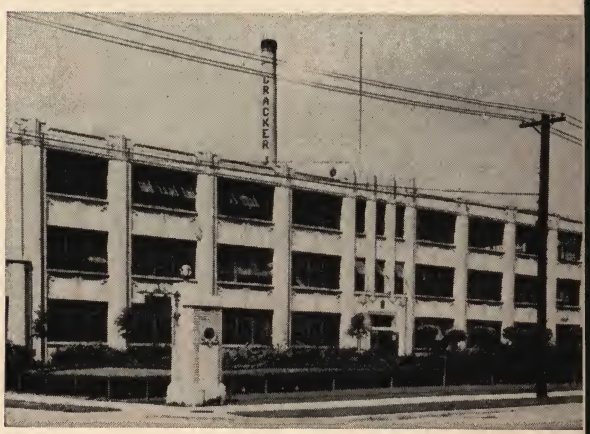
Privacy and Protection
(Reduces or eliminates many security measures)



The Allison School, Wilkinsburg, Pa., before sash replacement.



Note the tremendously improved appearance of the building after replacing the old sash with PC Glass Blocks.



This was the Cracker Jack Co., Chicago, Illinois, plant before replacement of rotted sash.



Cracker Jack saved $250 *per window opening per year* in maintenance costs alone using PC Glass Blocks as replacement for old windows.

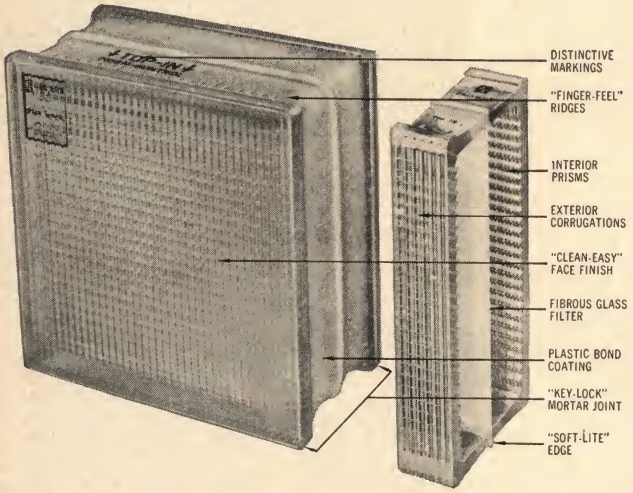
FUNCTIONAL GLASS BLOCKS

PC Functional Glass Blocks are available both in *light-directing* blocks which bend incoming light toward the ceiling, and in *light-diffusing* blocks which spread light in all directions. A choice of three degrees of light control is available in both types of block depending on the building orientation.

Building orientation is an important factor. For example, glass blocks would be used on East, South or West exposures to control and reduce brightness of light to a comfortable level and to reduce radiant heat gain. On Northern elevations, glass blocks are used primarily to transmit light and reduce heat flow.

three degrees of control

The three degrees of control are obtainable by specifying—(1) Suntrol® for *maximum* control. These blocks have a pale green fibrous insert which reduces brightness by 35 per cent and instantaneous heat gain by 25 per cent over standard glass blocks. (2) "LX" for *medium* control of brightness and solar heat gain. These blocks have a white fibrous insert which like Suntrol is an integral part of the block. (See illustration below.) (3) Regular Block where only a *normal* degree of control is necessary. These blocks contain no fibrous insert.



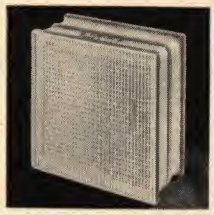
functional block features

Soft-Lite® edge, a Pittsburgh Corning exclusive feature, is white opal glass fused to the inside edge seal of the two glass block halves. It reduces glare and gives panels of blocks a uniform brightness. All PC functional blocks designed for sun exposures have this feature.

The Bristol non-sun exposure block does not contain this feature and is not recommended where direct sun rays will hit the panel. Every PC functional block is stamped on the top edge with distinctive markings which identify the pattern and indicate the inside and outside face. Proper positioning is most important if the blocks are to function properly.

Other features include a "Key-Lock" mortar joint and plastic bond coating for watertight construction, a "Clean-Easy" face finish for easier clean-up, and "Finger-Feel" ridges pressed into the top mortar edge of all functional blocks to further assist the mason.

light-directing blocks (used above eye-level only)





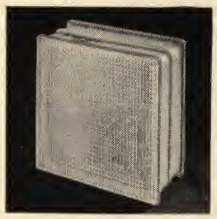
Prism B—Recommended on sun or non-sun exposures for *maximum* light transmission and moderate brightness and solar heat control. Available only in an 8-inch square.

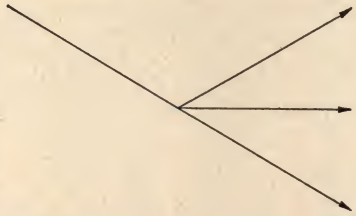
Prism B LX—Same design as Prism B except with a white fibrous insert to reduce glare and solar heat gain. Recommended on sun or non-sun exposures where *medium* light transmission, brightness control, and solar heat gain are desired. Available in 8 and 12-inch squares.

Prism Suntrol®—Same design as Prism B except with a pale green fibrous insert for reducing glare and solar heat gain to a greater degree. Recommended on sun or non-sun exposures where maximum control of brightness and solar heat and *minimum* light transmission are required. Available in 8 and 12-inch squares.

light-diffusing blocks

(used above or below eye-level)





Essex—Diffuses sunlight in all directions. Recommended on either sun or non-sun exposures where a *maximum* of light transmission and moderate brightness and solar heat control are acceptable. Available only in an 8-inch square.

Essex LX—Same design as Essex except with white fibrous insert to reduce glare and solar heat gain. Recommended on sun exposures where *medium* light transmission and brightness control, and solar heat control, are acceptable. Available in 8 and 12-inch squares.

Essex Suntrol®—Same design as Essex except with a pale green fibrous insert for reducing glare and solar heat gain to a greater degree. Recommended on sun or non-sun exposures where maximum control of brightness and solar heat and *minimum* light transmission are desired. Available in 8 and 12-inch squares.

general purpose blocks



Bristol—for non-sun exposures

Bristol LX—for sun exposures

When it is not practical to combine the various functional blocks, we suggest the use of these blocks throughout the building. Both are light-diffusing blocks and are excellent where high, cluttered ceilings will not reflect enough light and rule out the use of light-directing blocks. Available only in 8-inch squares.

Actual block dimensions:

6-inch—	5¾" x 5¾" x 3⅞"
8-inch—	7¾" x 7¾" x 3⅞"
12-inch—	11¾" x11¾" x 3⅞"
4 x 12—	3¾" x11¾" x 3⅞"

DECORATIVE BLOCKS

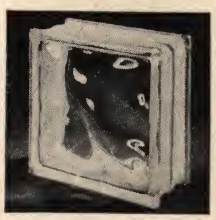
These blocks, as the name suggests, are intended solely for *decorative* purposes. They are not recommended where controlled daylighting is the important goal, but rather for installations where the decorative appearance of the panel outweighs its daylighting characteristics. Decorative blocks transmit plenty of light, but they don't control it as do the functional patterns.



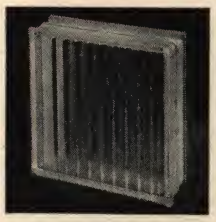
Argus—Gives high light transmission and good privacy. The outer faces are smooth and the rounded flutes on the inner faces are at right angles to each other. It can be laid with flutes on one side either horizontal or vertical. Available in 6, 8, and 12-inch squares.



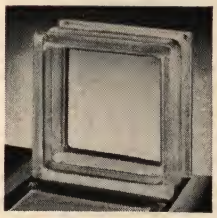
Argus Parallel Flutes—Gives high light transmission and fair privacy. It is the same basic block as the Argus, except that the flutes on both faces are parallel. This block can be laid with flutes vertical or horizontal. Available in 6, 8, and 12-inch squares. This pattern also available in 8-inch and 12-inch square with white "LX" insert.



Decora—Gives high light transmission and can be laid without considering which edge is either side or top. The design is pressed into the inner faces, and the outer faces of the block are smooth. This block is almost transparent and is not recommended for use on sun exposures. Available in 6 and 8-inch squares plain, and 12-inch only with the "LX" insert.



Saxon—Gives good light transmission and is uniformly bright in sunlight. It offers complete privacy. It has shallow, narrow reeds on its outer faces, parallel to wide flutes on the inner faces which are lightly etched. Usually it is installed with the narrow outer reeds vertical to make cleaning easy. Available in 12-inch squares only.



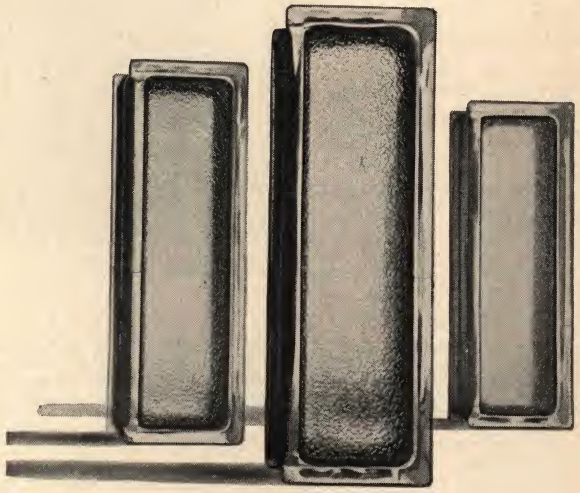
Vue—Gives high light transmission and good visibility through the block. It is frequently used in panels of other patterns to provide a vision area where desired. It can be laid without regard to which edge is side or top. Both the outer and inner faces are smooth and clear. Available in 8 and 12-inch squares.

THE NEW SIZE

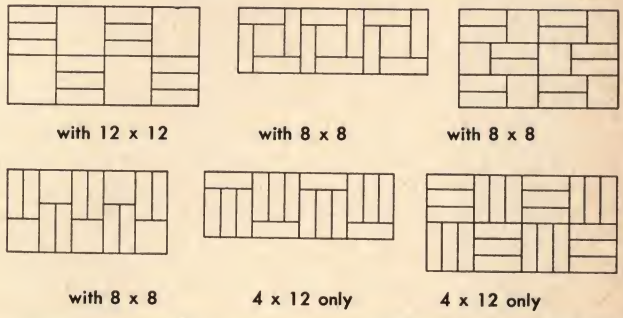
4 x 12

We thought of a lot of fancy names for this new PC Glass Block. We settled on what seemed most appropriate—the 4 x 12. This block is modular with all other standard size glass blocks of 6″, 8″, and 12″ squares. The outside faces are smooth for practical reasons, but an acid-etched appearance gives character and texture to the interior faces. The product is available plain, and with white or green-tinted fibrous inserts. It is available also in twelve ceramic face colors. The sketches below show only a few ways in which the product can be integrated with standard blocks.

Actual block dimensions 3¾″ x 11¾″ x 3⅞″



New design ideas using the 4 x 12



COLOR GLASS BLOCKS BY PITTSBURGH CORNING

NOW—TWELVE COLORS

Twelve ceramic face colors in three sizes now provide the Architect with a new medium for integrating color accents into the Glass Block Curtain Wall.

Enriching the present-day church with a quiet feeling of dignity and adding color highlights to the design of a contemporary building structure are only two of the countless possibilities with this new product. The color range is listed below.

Pastel Blue · Pastel Green · Coral · Charcoal Gray
Walnut · Black · White · Deep Green · Deep Red
Deep Blue · Yellow · Orange

(For more information write for our Catalog GB-110 and for color chip sample card CGB-2).

6″ and 8″ Color Glass Block have color on the standard Decora pattern.
4 x 12 Color Glass Block are on the standard 4 x 12 pattern.

PC Color Glass Blocks available on Architect Specifications

6 x 9 SOLID GLASS BRICK

This solid glass unit was developed primarily for use in detention windows in prisons, jails, mental institutions, and many other applications such as jewelry stores and bonded warehouses. It has excellent daylighting characteristics yet gives privacy due to the etched surface on the inside. And its handsome appearance eliminates the "institutional" look of this type of structure. For more information on this product used in combination with steel sash, write for our folder, "Bayley-PC Guard Window Systems."



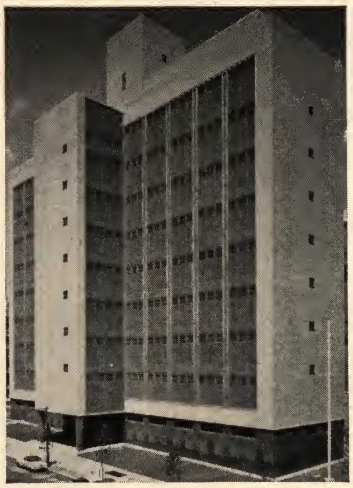


Photo at right shows a typical installation of Pittsburgh Corning Solid Glass Bricks. Note the impressive facade of the new Brooklyn House of Detention for Men, Brooklyn, New York. Architects, LaPierre, Litchfield and Partners, New York. Builders, Castagna and Sons, Incorporated, Manhasset, Long Island.

layout table

no. of blocks	block sizes		
	6″	8″	12″
1	0′ 6″	0′ 8″	1′ 0″
2	1′ 0″	1′ 4″	2′ 0″
3	1′ 6″	2′ 0″	3′ 0″
4	2′ 0″	2′ 8″	4′ 0″
5	2′ 6″	3′ 4″	5′ 0″
6	3′ 0″	4′ 0″	6′ 0″
7	3′ 6″	4′ 8″	7′ 0″
8	4′ 0″	5′ 4″	8′ 0″
9	4′ 6″	6′ 0″	9′ 0″
10	5′ 0″	6′ 8″	10′ 0″
11	5′ 6″	7′ 4″	11′ 0″
12	6′ 0″	8′ 0″	12′ 0″
13	6′ 6″	8′ 8″	13′ 0″
14	7′ 0″	9′ 4″	14′ 0″
15	7′ 6″	10′ 0″	15′ 0″
16	8′ 0″	10′ 8″	16′ 0″
17	8′ 6″	11′ 4″	17′ 0″
18	9′ 0″	12′ 0″	18′ 0″
19	9′ 6″	12′ 8″	19′ 0″
20	10′ 0″	13′ 4″	20′ 0″
21	10′ 6″	14′ 0″	21′ 0″
22	11′ 0″	14′ 8″	22′ 0″
23	11′ 6″	15′ 4″	23′ 0″
24	12′ 0″	16′ 0″	24′ 0″
25	12′ 6″	16′ 8″	25′ 0″

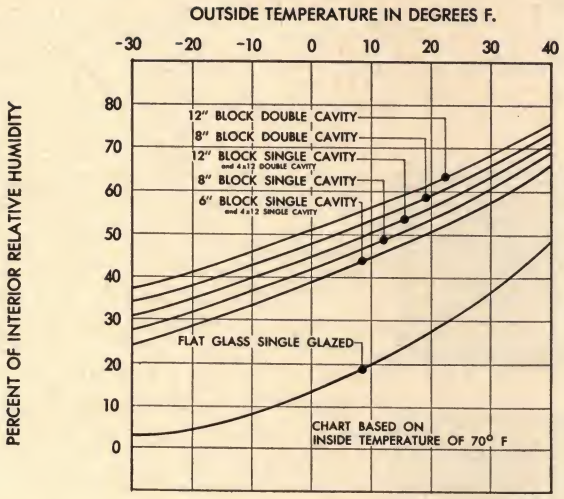
This table is based on Modular Coordination assuming ⅜″ mortar joints in face brick and ¼″ mortar joints between glass blocks.
For minimum required opening width, find table dimension and add ½″.
For minimum required opening height, find table dimension and add ⅜″ plus minimum lintel deflection.

Actual block dimensions: 6 inch size— 5¾″ x 5¾″
8 inch size— 7¾″ x 7¾″
12 inch size—11¾″ x 11¾″
4 x 12 size— 3¾″ x 11¾″

All blocks are 3⅞″ thick.

PHYSICAL PERFORMANCE DATA

surface condensation chart



how to use the chart: To solve a typical problem, chart shows that with an inside temperature of 70°F. and relative humidity of 40%, it takes an outside temperature of 23° below zero to cause condensation on a panel of 12-inch double cavity LX blocks such as the Essex LX. Under the same conditions, condensation will form on a single-glazed flat glass window at 33° above zero.

thermal insulation values . . . the high insulation value of PC Glass Blocks is the result of two factors: first, the partial vacuum in each hermetically sealed block, and second, the fibrous glass insert in the LX and Suntrol Glass Blocks that creates two dead air spaces.

"U" values (coefficient of heat transmission)

glass block size and type	"U" (Btu./hr./sq. ft./°F.)
6″ square—single cavity	0.60
8″ square—single cavity	0.56
8″ square—double cavity	0.48
12″ square—single cavity	0.52
12″ square—double cavity	0.44
4″ x 12″ —single cavity	0.60
4″ x 12″ —double cavity	0.52

sound reduction . . . the average sound reduction factor for PC Glass Blocks is 38.0 decibels, which is equal to the difference in noise level between an average factory and a quiet home.

weather resistance . . . PC Glass Block panels show no sign of deterioration under severe weather cycle tests, which consist of heating, water spraying and freezing the glass surface with temperatures varying from 155°F to −40°F.

wind load resistance . . . within recommended area limits (see pages 8 and 10) PC Glass Block panels will withstand a wind load of 20 pounds per square foot with a safety factor of 2.7. Twenty pounds per square foot is equivalent, approximately, to a 75 m.p.h. wind; 54 pounds per square foot to a 130 m.p.h. wind.

structural strength . . . 400 to 600 pounds per square inch is the ultimate compressive strength of a PC Glass Block panel when uniformly loaded. While this is higher than many masonry constructions, never use glass blocks for load bearing walls.

selection data

Solar, or radiant, heat gain through a fenestration can normally be considered for two circumstances. In air-conditioned buildings, both the rate of heat flow through the fenestration and the reradiation characteristics are important. These properties, for unshaded panels of 8″ glass blocks, are shown in the accompanying table of instantaneous heat gain, which expresses a rate of heat flow, not total heat gain, for summer conditions.

The rate of heat flow, both radiant and conducted, through glass block panels is only 30%—75%, depending on pattern, of that through conventional glazing media. Because glass block panels have a relatively high mass, some of this heat flow is absorbed and reradiated diffusely. These factors should be taken into account in the design and sizing of the air-conditioning system.

In ventilated, but uncooled buildings, the summer time room temperatures in equivalent spaces fenestrated with either glass block or conventional materials will be quite similar, but there will be a lag in the temperature changes in the glass block fenestrated area. Under these conditions, the reradiation characteristics of glass block panels may cause the sensation of higher heat flow, and should be taken into account in the design and orientation of the glass block panels, and the type and method of ventilation. More complete information on the heat flow characteristics of glass blocks may be found in the current A. S. H. & A. E. Guide.

performance—lighting

exposure of panel	performance desired		light-directing block	light-diffusing block	sizes available	
	light transmission	brightness and solar heat control			8″	12″
sun	maximum	minimum	Prism B	Essex	■	
	medium	medium	Prism B LX	Essex LX	■	■
	minimum	maximum	Prism Suntrol	Essex Suntrol	■	■
non-Sun	maximum	minimum	Prism B*	Essex*	■	

*LX and Suntrol Blocks may be used on non-sun exposures with corresponding reduction in light transmission and increase in control of brightness and heat gain.

NOTE: Do not use light-directing blocks BELOW eye-level because they will throw light up into your eyes. EYE-LEVEL is considered to be 6 feet above the finish floor.

daylight illumination in foot candles*

fenestration type	feet from fenestration											
	non-sun exposure						sun exposure					
	5	10	15	20	25	30	5	10	15	20	25	30
glass block panels												
8″ PRISM B	35	25	18	12	10	8	58	43	31	22	16	13
8″ PRISM B LX	25	18	13	8	7	6	41	30	22	14	10	8
12″ PRISM B LX	35	25	18	12	10	8	43	32	23	14	10	8
8″ PRISM SUNTROL	16	11	8	5	4	3	27	20	14	9	7	5
12″ PRISM SUNTROL	23	17	12	8	7	5	28	21	15	9	7	5
8″ ESSEX	32	22	15	10	8	5	49	35	25	17	12	10
8″ ESSEX LX	22	14	10	8	6	4	35	25	18	11	9	7
12″ ESSEX LX	29	20	14	9	7	4	41	30	21	14	10	8
8″ ESSEX SUNTROL	14	9	7	5	4	3	23	16	12	7	6	5
12″ ESSEX SUNTROL	19	13	9	6	5	3	27	20	14	9	7	5
8″ BRISTOL	35	24	16	10	7	4						
8″ BRISTOL LX	22	16	11	7	5	3	30	22	16	11	9	8
glass block clerestory panels† (*minimum sill height* 9′)												
8″ PRISM B	38	26	16	14	9	7	55	45	30	22	13	8
12″ PRISM B LX							41	30	18	13	8	6
shaded vision windows†												
SASH AND SHADES	12	9	6	5	4	3	13	8	5	4	3	2

*Daylight illumination on the work plane in footcandles for each 1000 footcandles on exterior plane of fenestration.

†All data assumes each fenestration equal to 25% of floor area. (Large panel + clerestory + vision window area = 75%) Reduce in proportion for smaller areas.

instantaneous heat gain (BTU/HR/SQ. FT.)

glass block types* and patterns	exposure of panel	sun time										
		8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm
		dry bulb temperature (outdoor) °F.										
		77	80	83	87	90	93	94	95	94	93	91
TYPE I† ARGUS PARALLEL FLUTES DECORA VUE	N	7	7	10	12	14	16	17	18	18	17	20
	E	118	94	67	44	24	22	23	23	21	19	51
	SE	70	76	69	56	41	23	18	18	17	16	13
	S	8	17	29	39	42	46	42	33	23	19	15
	SW	6	8	10	14	24	49	74	93	94	81	54
	W	6	9	11	14	16	27	59	102	136	142	104
TYPE II BRISTOL	N	7	7	10	12	14	16	17	18	18	17	20
	E	109	85	66	43	24	22	23	23	21	19	15
	SE	65	71	67	55	41	23	18	13	17	16	13
	S	8	16	28	39	42	46	41	32	23	19	15
	SW	6	8	10	14	24	48	72	88	89	77	52
	W	6	9	11	14	16	26	58	96	127	134	97
TYPE III BRISTOL LX	N	6	6	8	10	12	14	15	17	17	16	19
	E	93	73	58	40	22	20	21	22	20	18	14
	SE	54	62	60	52	38	21	17	17	17	15	12
	S	7	14	24	35	40	42	37	30	22	18	14
	SW	5	7	9	12	20	45	65	79	78	68	49
	W	5	8	9	12	14	23	50	81	100	114	90
TYPE IV A ESSEX	N	5	5	7	9	11	13	14	16	16	15	18
	E	80	73	63	40	21	19	20	21	19	17	14
	SE	44	60	66	57	41	20	16	16	15	14	12
	S	6	12	23	38	45	45	36	28	21	17	14
	SW	4	6	8	11	18	50	71	77	68	58	42
	W	4	7	8	11	13	23	55	81	87	94	69
TYPE V PRISM B	N	5	5	8	10	12	14	15	16	16	15	18
	E	98	88	69	41	22	20	21	21	19	17	14
	SE	47	71	71	58	39	20	16	16	15	14	12
	S	6	13	28	40	45	47	41	29	21	17	14
	SW	4	6	8	11	19	51	76	88	71	58	42
	W	4	7	9	12	14	24	60	96	105	94	69

*Types designated by and data taken from A. S. H. & A. E. See Chapter 13, tables 19 to 23 "Heating, Ventilating, Air Conditioning Guide," 1957 for complete information.

†For descriptions of PC Decorative Blocks, see page 5.

Table assumes clear atmosphere, 75°F. indoor temperature, 18° declination north (for August 1), 40° north latitude.

For industrial atmospheres, reduce total heat gain 20% on east and west elevations, 5% on south elevations.

For each degree that design room temperature exceeds 75°F., subtract 0.5 from values shown. For each degree that outdoor dry bulb temperature exceeds 95°F., add 0.5 to values shown.

TYPICAL PANEL DETAILS

general notes

On the following two pages are shown elevations and sections of typical glass block panels. The large scale sections are typical head, jamb and sill details to show principles of construction only. Any structural members must be calculated for safe loading, and local building codes checked for any possible restrictions on panel sizes or detail. While single panels of glass block are limited to a maximum of 144 square feet, panels or curtain walls up to a maximum area of 250 square feet may be erected if properly braced to limit movement and settlement.

If chase construction as shown on this page cannot be used, substitute the panel anchor construction that is shown on page 10. Panel anchors are used to give lateral support for glass block panels.

Any glass block installation that is made in a frame construction shall have the wood adjacent to the mortar properly primed with Pittsburgh Corning Asphalt Emulsion.

Underwriters' Listing. PC Glass Block panels may be used for window openings subject to light fire exposure (Class F openings).

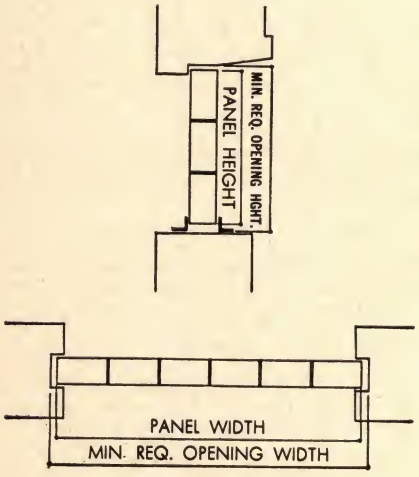
modular coordination

All PC Glass Blocks are made in modular coordinated sizes. They can be laid in the standard grid based on a module of 4 inches. Information on Modular Coordination can be obtained from the Modular Building Standards Association, 2029 K Street, N. W., Washington 6, D. C.

chase construction

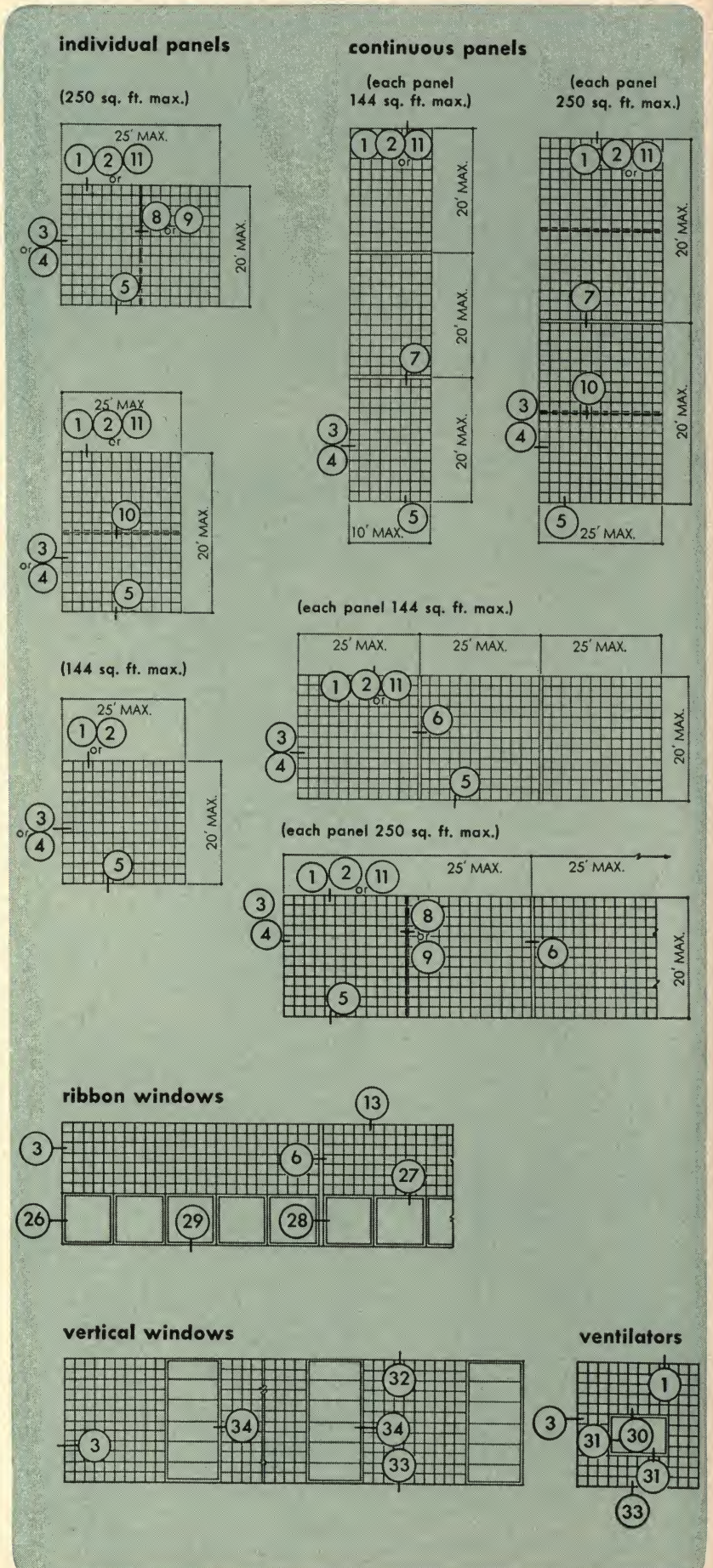
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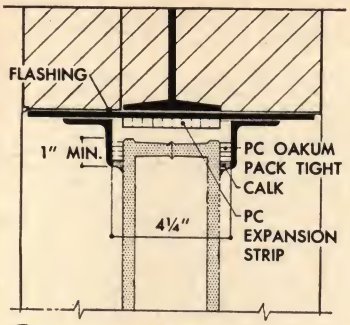
Maximum Area 144 Square Feet
Maximum Height 20 Feet
Maximum Width 25 Feet



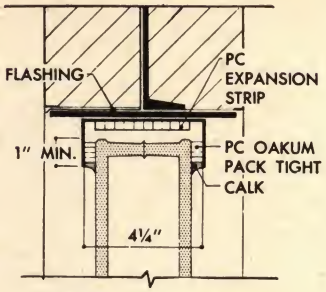
exterior panels

(for panels less than 100 sq. ft. see page 10)

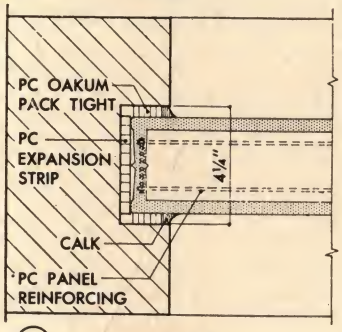




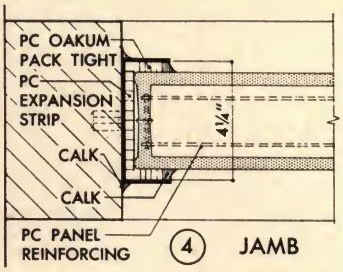
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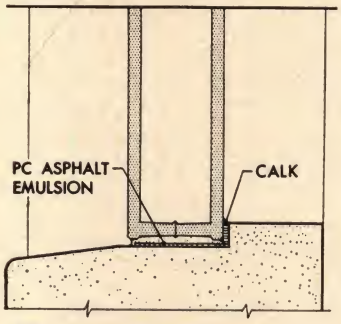
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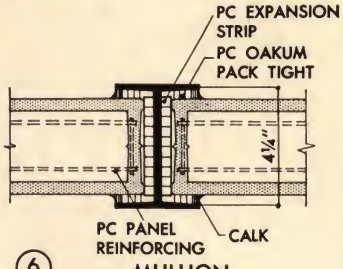
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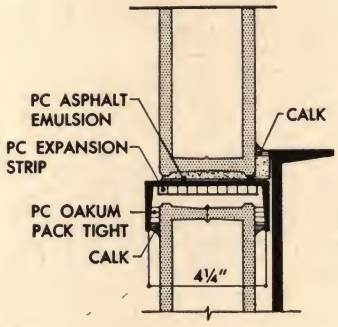
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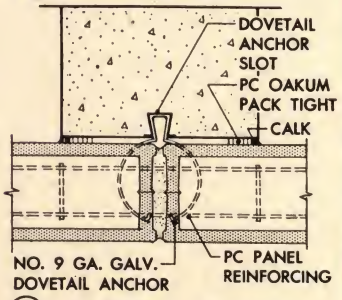
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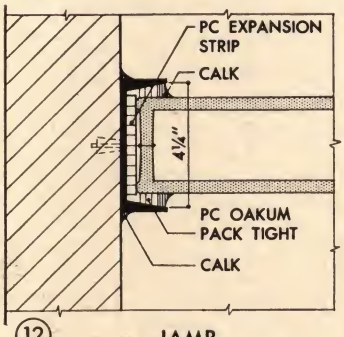
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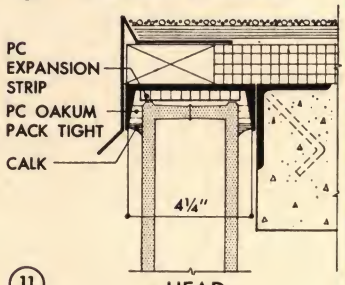
7 SHELF



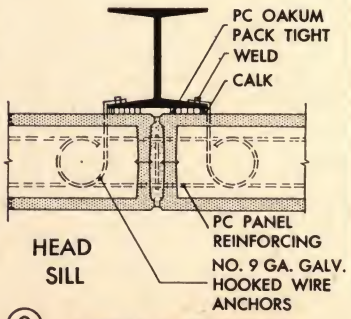
8 VERTICAL STIFFENER



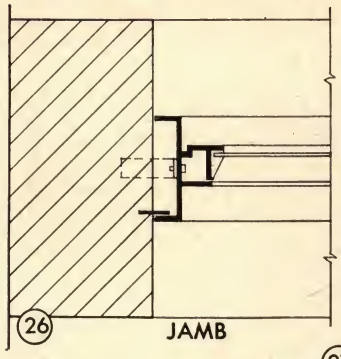
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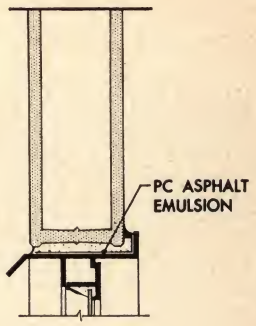


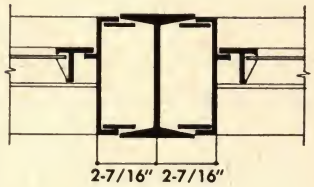
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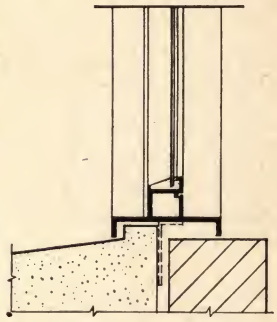


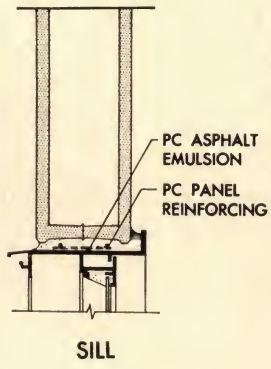
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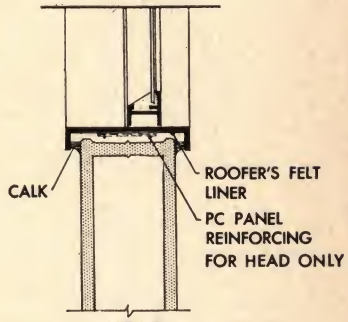


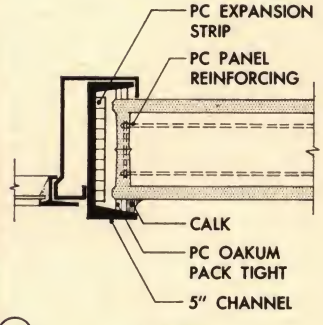


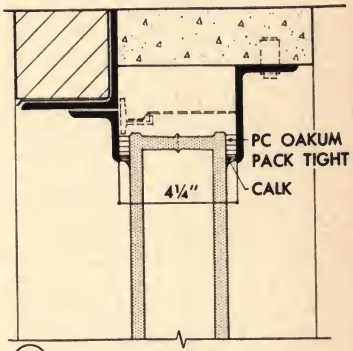


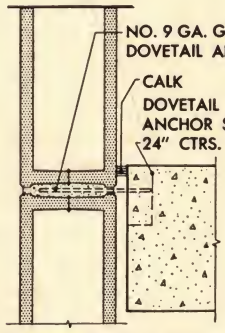


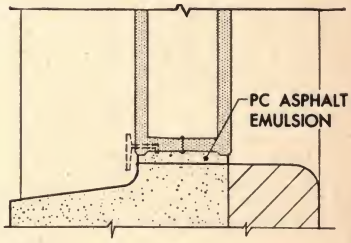






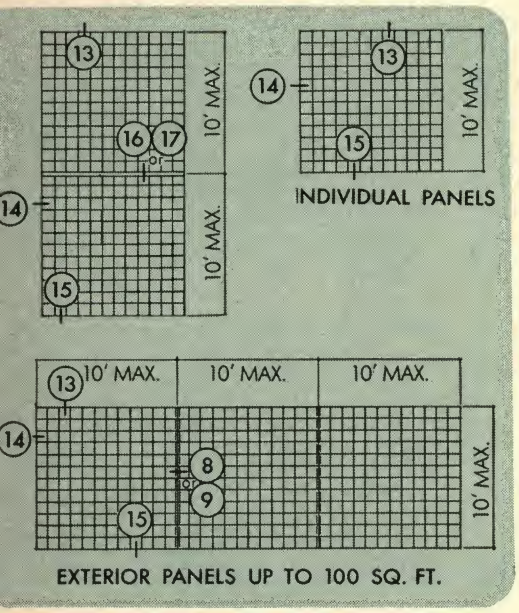


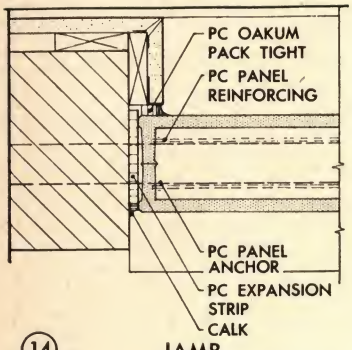




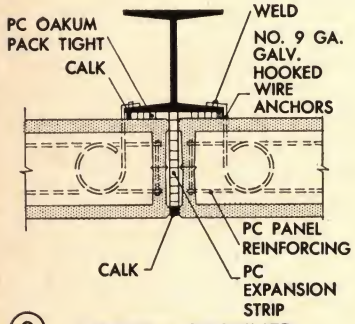
exterior panels

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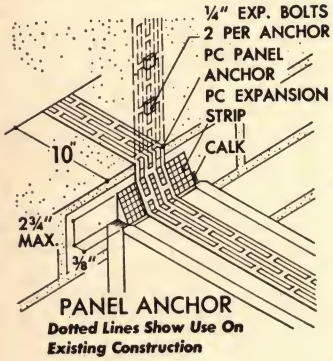




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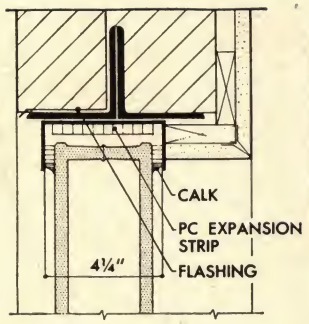


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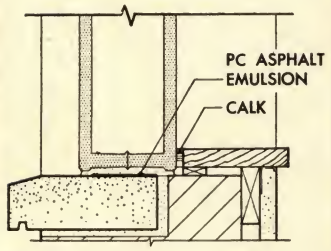


PANEL ANCHOR

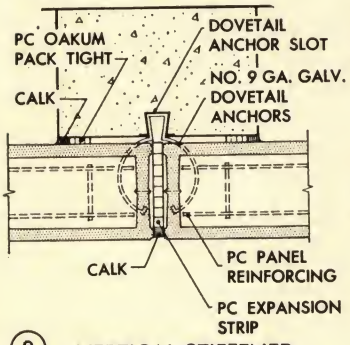
Dotted Lines Show Use On Existing Construction



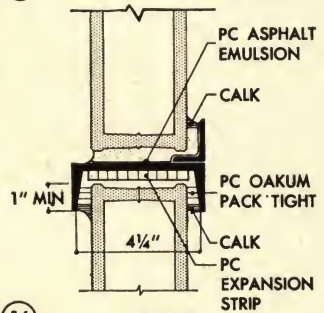
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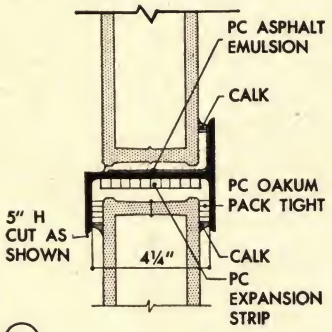
(15) SILL



(8) VERTICAL STIFFENER



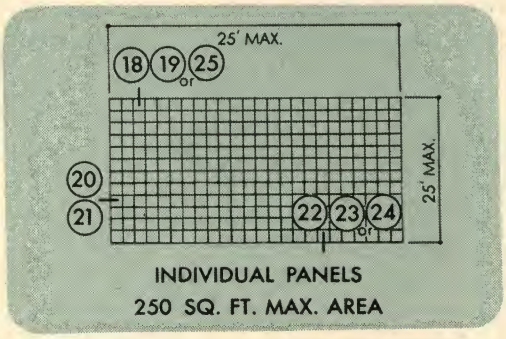
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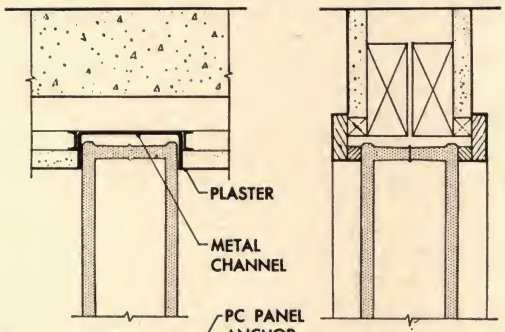


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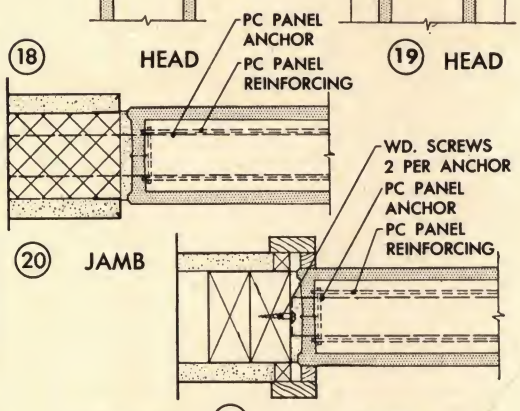
interior panels

scale: 1½"=1'0"

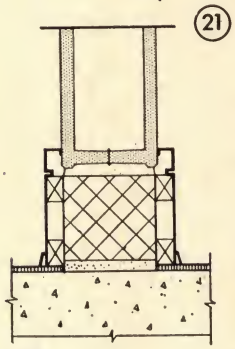




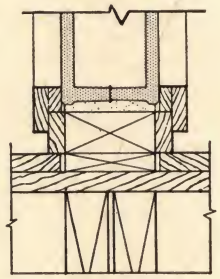
(18) HEAD (19) HEAD



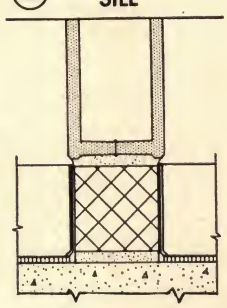
(20) JAMB (21) JAMB



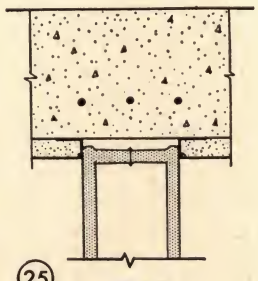
(22) SILL



(23) SILL



(24) SILL



(25) HEAD

SUGGESTED SPECIFICATIONS

general conditions: The "General Conditions" of the contract are a part of these specifications.

scope of the work: The contractor shall furnish all labor and materials to install all glass blocks, where shown on the drawings or specified hereinunder. This shall include the furnishing and installation of all expansion strips, oakum packing, panel reinforcing, panel anchors, calking, asphalt emulsion, and other labor materials necessary for a complete installation. This contract does not include the preparation of the structure to receive the glass block panels, such as chases, stiffeners, etc., except as hereinafter specified.

materials: Glass Blocks . . . shall be partially evacuated, hollow masonry units made of clear, colorless glass, as manufactured by the Pittsburgh Corning Corporation. These units shall be made by fusing two sections of pressed glass together at elevated temperatures. Edge construction of the units shall be such that a "key-lock" mortar joint is formed. Each unit shall be edge-coated with a resilient plastic to improve bond with mortar. Color Glass Blocks shall be as manufactured by Pittsburgh Corning Corporation and shall consist of a fired-on ceramic enamel coating on one face of a standard unit as described above.

patterns—sizes . . . shall be as shown on the drawings or as specified hereinunder: (Indicate PC patterns, sizes and locations. Where applicable indicate Soft-Lite Edge.)

expansion strips . . . where shown or required, shall be PC Expansion Strips as furnished by the Pittsburgh Corning Corporation.

asphalt emulsion . . . where shown or required, shall be PC Asphalt Emulsion as furnished by the Pittsburgh Corning Corporation.

panel reinforcing . . . shall be PC Panel Reinforcing of galvanized steel double wire mesh formed of two parallel wires (No. 9 gage) 2 in. on centers with electrically welded cross wires (No. 14 gage) at regular intervals. This reinforcing shall be embedded in horizontal mortar joints on approximately 24 in. centers, and in joints above and below all openings within panels. Reinforcing shall run continuously from end to end of panels and shall be lapped not less than 6 in. wherever it is necessary to use more than one length. Do not bridge expansion joints with reinforcing.

panel anchors . . . where shown on drawings shall be PC Panel Anchors as furnished by the Pittsburgh Corning Corporation and shall be No. 20 gage perforated steel strips 24 in. long by 1¾ in. wide galvanized after perforating. All panel anchors must be crimped within expansion joints, and shall generally be placed 24 in. apart occurring in the same joint as panel reinforcing and must be completely embedded in the mortar joint of the glass block panels.

mortar . . . shall be 1 part Portland Cement, ¼ to 1¼ parts lime, and sand equal to between 2¼ and 3 times the amount of cementitious material (cement plus lime), all measured by volume, plus an integral type waterproofer. If a waterproof Portland Cement is used, the integral type waterproofer shall be omitted. For interior panels the waterproofer shall be omitted.

Admixtures in the form of setting accelerators and anti-freeze compounds shall not be used.

If desired, a mortar prepared from masonry cement meeting requirements of ASTM C-91, Type II, incorporating a metallic stearate-type waterproofer, and mixed in accordance with the manufacturer's recommendations is an acceptable alternate.

Any combinations of the above mortar mixes will fall within types A-1, A-2 or B mortar as recommended by the "American Standard Building Code Requirements for Masonry," and approved by the American Standards Association as American Standard A41.1 (as revised), or specifications for Mortar for Unit Masonry, ASTM Designation C-270.

mixing: The mortar shall be mixed to a consistency as stiff as will permit good working and shall be drier than mortar for ordinary brickwork. Retempering the mortar after it has taken its initial set shall not be permitted.

mortar type	proportions by volume			minimum compressive strength of 2" cube at 28 days (P.S.I.)
	portland cement	hydrated lime or lime putty (allowable range)	aggregate	
A-1	1	¼*	between 2¼ and 3 times the volume of cementitious materials (cement plus lime)	2500
A-2	1	more than ¼ but less than ½	between 2¼ and 3 times the volume of cementitious materials (cement plus lime)	1800
B	1	½ to 1¼	between 2¼ and 3 times the volume of cementitious materials (cement plus lime)	750

*maximum and minimum

portland cement . . . shall be Type 1 conforming to the Standard Specifications for Portland Cement, ASTM Designation C-150. If waterproof Portland Cement is used it shall be of a type as specified by the Architect. If desired, a waterproof, high early-strength Portland Cement may be used.

lime . . . shall be a high calcium lime, or a pressure-hydrated dolomitic lime, meeting the requirements of specifications for Hydrated Lime for Masonry Purposes, ASTM Designation C-207, Type S.

sand . . . shall conform with the Standard Specifications for Aggregate for Masonry Mortar, ASTM Designation C-144, for thin joints.

waterproofer . . . shall be PC Mortar Waterproofer Type NV-3389 (stearate). It shall be added to the mortar at the time of mixing and in the proportion shown on the can label, except where a waterproof Portland Cement or prepared waterproofed masonry cement mortar is used. In the latter cases, no waterproofer shall be added at the time of mixing.

oakum . . . where indicated on drawings or required as a lateral cushioning for glass block panels at jambs, heads and intermediate supports, shall be PC Oakum (non-staining, dry-rot treated, sliver type) as furnished by the Pittsburgh Corning Corporation.

calking . . . shall be as specified by the Architect and shall be a non-staining, waterproof mastic. This shall be evenly applied to the full depth of recesses as indicated on the details.

flashings . . . Unless otherwise specified, contractor shall furnish and install in locations shown or where required, flashings as are necessary to provide a complete installation.

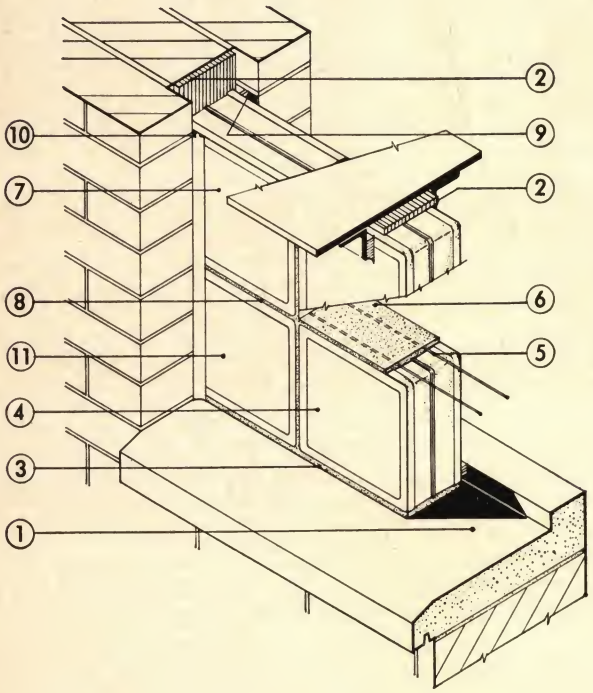
installation . . . Areas at the sill to be covered by mortar shall be given a heavy coat of asphalt emulsion which shall be allowed to dry before blocks are laid. Where required, expansion strips shall be adhered to head and jambs by the use of gobs of asphalt emulsion and shall run continuously from end to end of expansion space.

All mortar joints must be completely filled with mortar and shall not be furrowed. Mortar must not bridge across expansion joints. Blocks shall be laid straight, plumb and true to dimensions, with ¼ in., or as otherwise specified, visible width mortar joints. Joints shall be tooled smooth and slightly concave just before mortar attains initial set so that the exposed edges of the blocks are sharp, clean lines. The number of course of blocks laid in successive lifts shall be limited to prevent squeezing out of the mortar and movement of the blocks.

cleaning . . . Surplus mortar shall be removed and the faces of the blocks shall be wiped dry at the time joints are tooled. Cleaning is facilitated by the use of an ordinary household scrub brush having stiff bristles. Final cleaning shall be done by others after mortar has attained final set.

PC glass block

HOW TO INSTALL



1. Sill area to be covered by mortar shall have a heavy coat of PC Asphalt Emulsion.
2. Adhere PC Expansion Strips to jambs and head with PC Asphalt Emulsion. Make certain expansion strip extends to sill.
3. When emulsion on sill is dry, place full mortar bed joint—do not furrow.
4. Set lower course of block. All mortar joints must be full and not furrowed. Steel tools must not be used to tap blocks into position.
5. Install PC Panel Reinforcing in horizontal joints where required as follows:
   (a) Place lower half of mortar bed joint. Do not furrow.
   (b) Press panel reinforcing into place.
   (c) Cover panel reinforcing with upper half of mortar bed and trowel smooth. Do not furrow.
   (d) Panel reinforcing must run from end to end of panels and where used continuously must lap 6 inches. Reinforcing must not bridge expansion joints.
6. Place full mortar bed for joints not requiring panel reinforcing. Do not furrow.
7. Follow above instructions for setting succeeding courses of blocks.
8. Strike joints smoothly while mortar is still plastic and before final set. At this time rake out all spaces requiring calking to a depth equal to the width of the spaces. Remove surplus mortar from faces of glass blocks and wipe dry. Tool joints smooth and concave, before mortar takes final set.
9. After final mortar set pack PC Oakum tightly between glass block panel and jamb and head construction. Leave space for calking.
10. Calk panels as indicated on details.
11. Final cleaning of glass block faces shall not be done until after final mortar set.

NOTE: Good workmanship is essential to obtaining water-tight panels. This is particularly important in the construction of Glass Block Curtain Walls. Follow the installation procedure above and the specifications on Page 11.

ACCESSORY MATERIALS

PC asphalt emulsion—To be used on all sills to form a waterproof joint. Also used to adhere expansion strips to jambs and heads before installing glass blocks. See specifications (Page 11) for proper application. For sills and adhering of expansion strips estimate one (1) gallon for approximately 150 lin. ft. Available in one-quart, one-gallon and five-gallon containers.

PC mortar waterproofer—To be added to the mortar to conform with PC specifications. Use one (1) quart per bag of cement. Available in one-quart, one-gallon and five-gallon containers.

PC oakum—(Non-staining, dry-rot treated, sliver type)—To be used as a lateral cushioning for glass block panels by tightly packing between panel faces and the supporting structure. See details for proper application.
For packing both faces of panels laid up in 4¼″ wide chases, estimate 2½ lbs. (one tube) for 30 lin. ft. of chase. Available in wound tubes, weighing 2½ lbs. net, packaged in handy dispenser cartons. Six individually-packaged tubes per shipping carton.

PC expansion strips—To be used in expansion spaces at jambs and heads installed in accordance with PC specifications. Available in the following size: ⅜″ x 4⅛″ x 24″ (for use in chase construction). For panel anchor construction, standard 4⅛″ wide strips can easily be cut to 3″ width required.

PC panel reinforcing—To be used in horizontal joints of glass block panels, spaced and installed in accordance with PC specifications. Panel Reinforcing is formed of two No. 9 gage galvanized wires spaced 2″ apart with No. 14 gage galvanized cross wires welded every 8″. Available in 8′ lengths.

PC panel anchors—To be used where chase construction is not applicable for supporting panels up to 100 sq. ft. in area where permitted by building code requirements. Spaced and installed in accordance with PC specifications. Panel Anchors are No. 20 gage perforated steel galvanized after fabrication. Available in 2′–0″ lengths, 1¾″ wide.

GENERAL OFFICES: Pittsburgh Corning Corporation · One Gateway Center · Pittsburgh 22, Pa.

DISTRICT OFFICES

ATLANTA 9, GEORGIA
968 Peachtree Street, N.E.
TRinity 2-4402

HOUSTON 2, TEXAS
1607 Jefferson Avenue
CApitol 7-1619

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Room 1526,
The Engineering Building
205 West Wacker Drive
FInancial 6-2376

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HUnter 1-7038

NEW YORK 17, NEW YORK
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MUrray Hill 8-8350

PHILADELPHIA 2, PENNSYLVANIA
Room 1205, Lewis Tower Building
225 South Fifteenth Street
KIngsley 6-3510

PITTSBURGH PC CORNING

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CONCORD

Manufacturers of GLAZING COMPOUNDS • PUTTY CAULKING COMPOUNDS • CURTAIN WALL SEALANTS

COMPANY HISTORY

Since 1875, the CONCORD PAINT COMPANY has supplied the glazing trade with putties and glazing compounds that have consistently and successfully met exacting requirements. For more than 30 years, Concord's staff of laboratory technicians has kept pace with new developments in building construction. CONCORD PRODUCTS have been used satisfactorily on federal, state, municipal and private construction projects. *When you specify CONCORD, you can always be sure of top quality and trouble-free performance.*

These representative buildings are proof of the quality of CONCORD GLAZING COMPOUNDS and PUTTY.



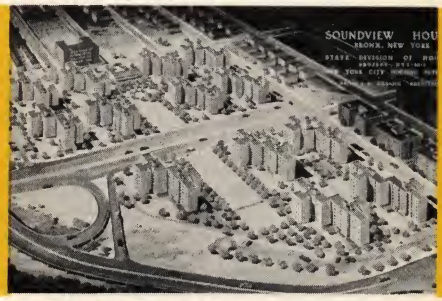
MANHATTAN HOUSE
New York, N. Y.
Architect: Skidmore, Owings & Merrill



SCHWAB HOUSE
New York, N. Y.
Architect: Sylvan Bien



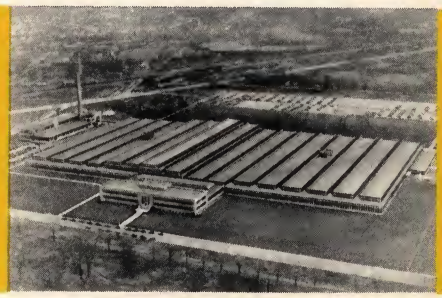
FOREST HOUSES
New York, N. Y.
Architect: Rosario Candela & Paul Resnick



SOUNDVIEW HOUSES
New York, N. Y.
Architect: Reisner & Urbahn



FORD ASSEMBLY PLANT
FORD MOTOR COMPANY
Mahwah, N. J.
Architect: Giffels & Valett, Inc.



PRATT & WHITNEY PLANT
Hartford, Conn.
Architect: Albert Kahn

CONCORD PAINT COMPANY, INC.

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CON-GLAZE

ELASTIC GLAZING COMPOUNDS

for Steel, Aluminum, Bronze, Wood Windows

CONCORD GLAZING COMPOUNDS

are the result of many years of research and experimentation. They differ from wood and metal sash putties in composition and performance. Made of finest quality processed oils and pigments, they are compounded to be weather-resistant, adhere firmly to sash and glass, form a perfect water-repellent bond, and remain plastic and resilient.

Particularly effective on aluminum sash, CON-GLAZE Glazing Compounds are ideal, too, for steel, stainless steel, bronze and bonderized-galvanized steel sash. They provide maximum protection without paint—and last even longer when painted.

advantages

1. Easy to handle and apply.
2. Cling tenaciously to sash and glass.
3. Remain elastic and rubbery.
4. Cushion glass against unnecessary breakage.
5. Allow for expansion and contraction.
6. Assure a permanent watertight seal, preventing moisture from getting underneath to corrode the metal or rot the sash.
7. Make re-glazing easy.
8. Resist acid and alkali fumes.

Plus this important extra advantage

The CON-GLAZE initial set is faster. This reduces the hazard of marring with finger marks, etc. Although CON-GLAZE Glazing Compounds set faster, they will not oxidize or "dry" throughout.

TYPE "A" FOR ALL WOOD SASH GLAZING

Sets firm — remains elastic and rubbery — allows for expansion and contraction. Forms a permanent weathertight seal.

Meets Federal Specification TT-P-781a Type 1

TYPE "B" FOR ALL TYPES OF STEEL WINDOWS

Sets firm — remains elastic and rubbery — allows for expansion and contraction. Forms a permanent weathertight seal.

Meets Federal Specification TT-P-781a Type 1

TYPE "C" FOR USE ON ALUMINUM WINDOWS

Adheres firmly to the smooth surface of aluminum. Sets firm — remains elastic and rubbery — allows for expansion and contraction. Forms a permanent weathertight seal. Colored to match aluminum sash.

Meets Federal Specification TT-P-781a Type 1

TYPE "D" FOR ALL WIDE RABBITED ALUMINUM AND STEEL WINDOWS,

It solves the glazing problem where a faster set is necessary, while retaining all the qualities and requirements of Type "B" and Type "C" CON-GLAZE.

Meets Federal Specification TT-P-781a Type 1

STOCK COLORS: Neutral, Steel Grey, Aluminum Grey.

NOTE: Our Type "C" and Type "D" GLAZING COMPOUNDS should always be specified when used in conjunction with our CON-O-SEAL CP58 Sealant in Curtain Wall Glazing.

SPECIFICATIONS:

Steel, Aluminum and Bronze Windows

Window rabbets shall be thoroughly cleaned. No glazing shall be carried on during inclement weather, or when sash or glass is wet, damp or frosted. Spring clips or blocks shall be used to hold glass firmly in sash, as required. The glazing compound shall be of a color selected by the architect. Glass shall be well bedded—then faced or filled-in, as needed, with CON-GLAZE Glazing Compound (indicate Type B, C or D), as manufactured by the Concord Paint Company, Inc., New York 59, New York.

Wood Sash

Sash shall be properly primed. Glaziers' points or blocks shall be used to hold glass firmly in sash, as required. The glazing compound shall be of a color selected by the architect. Glass shall be bedded—then faced with CON-GLAZE Glazing Compound, Type A, as manufactured by the Concord Paint Company, Inc., New York 59, New York.

SERVICE FOR ARCHITECTS. Many glazing problems arise concerning the proper type of glazing compounds or putty best suited for certain types of jobs. When these problems arise we urge you to contact our technical department.

CONCORD *PUTTY*

for Steel and Wood Sash Glazing

SPECIAL CASEMENT SASH PUTTY

FOR USE ON ALL TYPES OF STEEL WINDOWS

Sets firm and lasting — remains watertight. For all interior or exterior glazing.

Meets Federal Specification TT-P-781a Type 11

HUNTS POINT 100% LINSEED OIL PUTTY

FOR USE ON ALL WOOD SASH

A high quality wood sash putty made with pure linseed oil and finest grade whiting. Used by leading glazing contractors.

Meets Federal Specification TT-P-791a Type 1

HUNTS POINT 100% LINSEED OIL PUTTY with 10% White Lead

FOR USE ON ALL WOOD SASH

Similar to our Hunts Point 100% Linseed Oil Putty, with white lead added to increase durability.

Meets Federal Specification TT-P-791a Type 11

CONCORD *Certified Caulking Compound*

A high grade non-staining caulking compound that meets the exacting requirements of Federal Specifications TT-C-598 Grade 1 (gun consistency) and TT-C-598 Grade 11 (knife consistency). Concord Certified Caulking Compound is outstanding in its class—dependable and durable.

SEALANT TAPES

CON-O-GUM CP-576

A polybutene base mastic compound extruded into tape form. The positive seal affected by CON-O-GUM sealing tape affords the finest weather protection always and cuts time and labor costs.

Compared with CON-O-TAPE CP-162, or any pre-formed rubber, vinyl, or neoprene gasket, CON-O-GUM tape is versatile. It has greater tolerance, and compresses easier. It adapts itself to any unevenness of joint widths. A tape of proper dimensions should be selected for a given joint to permit squeezing action to be exerted on the tape.

PROPERTIES:

Color: Off White.

Consistency: Dough-like mastic material.

Coverage: Depends on size and tape used and specified.

Stability: Indefinite length of time.

Volatile: None.

Odor: Mild.

Resistance: Excellent resistance to water and moisture vapor—surface is repellent to water at all times.

Effects of High and Low Temperatures: Does not become brittle or lose adhesion at —30 F. Does not flow or run in temperatures up to 350 F.

Shrinkage: Nil.

FURNISHED: **Thicknesses:** 1/16", 1/8", 3/16", 1/4" **Widths:** 1/2", 5/8", 3/4", 7/8", 1"

CON-O-TAPE CP-162

A non-curing synthetic eltstomer base compound extruded into tape form.

It was developed for use as a sealer and gasket between metal surfaces, metal and glass, metal and wood: and is used as a gasket, spacer or separator and seal. It serves to position the glass or panel in the frame, and has sufficient stickiness to stay in position without the use of additional adhesives.

PROPERTIES:

Colors: Aluminum, Black.

Consistency: Flexible, rubbery, tacky tape.

Coverage: Depends on size and tape used and specified.

Stability: Indefinite length of time.

Volatile: None.

Odor: None.

Resistance: Excellent resistance to water and moisture vapor—surface is repellent to water at all times.

Effects of High and Low Temp.: High Temp: It will retain its original shape up to 180 F. under no external pressure.

Low Temp: Material will not become brittle at —30 F.

Shrinkage: Nil.

FURNISHED: **Thicknesses:** 1/16", 3/32", 1/8", 3/16", 1/4", 5/16". **Widths:** 3/8", 1/2", 3/4", 1"

Several representative Buildings Glazed with CONCORD products

COMMODORE PERRY HOUSES
Buffalo, N. Y.

SUMNER HOUSES
Brooklyn, N. Y.

NEWARK HOUSES
Newark, N. J.

FREDERICK DOUGLAS HOUSES
New York, N. Y.

QUONSET POINT HOUSES
North Kingston, R. I.

FORT DEVENS HOUSING PROJECT
Fort Devens, Mass.

STATE OFFICE BUILDING DEPARTMENT OF HEALTH
Albany, N. Y.

BUSH TERMINAL BUILDINGS
Brooklyn, N. Y.

I.B.M. LABORATORY BUILDING
Kingston, N. Y.

AMERICAN CHICLE COMPANY
Long Island City, N. Y.

ARMSTRONG RUBBER COMPANY
Westhaven, Conn.

GRUMMAN AIRCRAFT BUILDING
Calverton, L. I., N. Y.

PRATT & WHITNEY AIRCRAFT BUILDING
East Hartford, Conn.

RAYTHEON MANUFACTURING CO.
Wayland, Mass.

U. S. ELECTRIC MANUFACTURING CO.
Milford, Conn.

U. S. RUBBER COMPANY
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CON-O-SEAL CP-58 SEALANT

A SEALANT FOR THE BUILDING INDUSTRY BASED ON THIOKOL* LIQUID POLYSULFIDE POLYMER

for Curtain Wall Glazing

ADVANTAGES

- *CON-O-SEAL* can be applied for overhead or vertical applications where flow or sag is undesirable.
- *CON-O-SEAL* will not oxidize or absorb moisture, thus effectively sealing joints against air, water, snow and dust.
- *CON-O-SEAL* will maintain bond between materials having widely different coefficients of thermal dimensional changes.
- *CON-O-SEAL* forms a rubber joint, or seal, which has excellent high and low temperature properties, remarkable contraction and expansion properties, and outstanding resistance to weather conditions. These maximum elongations and stress relaxation properties, coupled with extreme adhesion, insures maximum protection against possible glass breakage due to stresses, strains and movements.
- *CON-O-SEAL* can be painted if desired, for decorative purposes.
- *CON-O-SEAL* laboratory tests indicate that if properly applied it will provide excellent protection for periods up to 30 years or more.

CON-O-SEAL CP-58 SEALANT is a synthetic rubber compound for use in sealing joints where an absolute water tight seal is required, including those subject to extreme expansion and contraction.
It bonds well to almost all building materials, including those of dissimilar surface density and texture and is especially effective in curtain wall construction.

CON-O-SEAL CP-58 SEALANT is a two component product consisting of a base and catalyst to be mixed prior to application. After being mixed with the correct amount of catalyst the compound gradually stiffens, but retains its workable consistency as per the following schedule:

AIR TEMP.	HUMIDITY	POT LIFE	SET TO TOUCH	Maximum Strength CURING TIME
59° F.	50%	6-8 Hrs.	36-48 Hrs.	14 Days
77° F.	50%	3-4 Hrs.	18-24 Hrs.	7 Days
95° F.	50%	1½-2 Hrs.	9-12 Hrs.	3½ Days

NOTE: Humidity is definitely a factor in affecting the application pot-life. The above table shows only an average humidity. Pot-life is decreased by high humidity and increased by low humidity.



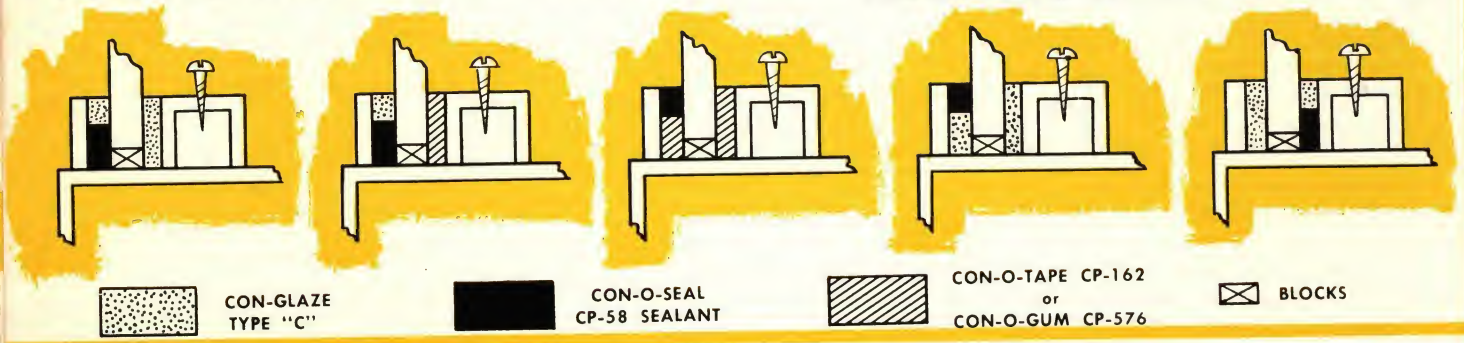
PHYSICAL PROPERTIES (Based on Standard Neutral Grey.)

UNCURED		CURED	
Base Rubber	THIOKOL Liquid Polysulfide Polymer	Shrinkage	Nil
Solids (non-volatile)	97%	Specific Gravity	1.5 (approx.) varies with color
Flow: A vertical joint applied by caulking gun at 77° F. to Aluminum panels ¾" wide x ¾" deep and 6" long, flows less than 1/32".		Ultimate Strength	140 lbs. per sq. in. (Average)
System: Two component catalyst reaction.		Elongation	Approx. 500% (Average)
		Weatherometer Test	Weatherometer exposure tests for the equivalent period of ten years normal exposure showed only that the lustre of CON-O-SEAL had disappeared but life of the material was unimpaired.

COLORS: Black, Aluminum, Neutral Grey and White. Other colors on special request.

TYPICAL WINDOW APPLICATIONS

(Showing combined applications of CON-O-SEAL, CON-GLAZE and CON-O-TAPE or CON-O-GUM)



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*A registered trademark of THIOKOL CHEMICAL CORPORATION

• glazing compounds
• caulking compounds
• curtain wall compounds
• putties and sealers

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DICKS - ARMSTRONG - PONTIUS, INC.
general offices • Dayton, Ohio

WORLD'S LARGEST EXCLUSIVE MANUFACTURERS OF PUTTIES • GLAZING • CAULKING • SEALING COMPOUNDS

PRODUCTS AND APPLICATIONS

PRODUCT / APPLICATION	Curtain Wall Panel Joint Sealing—Metal	Curtain Wall Panel Raw Edge Stripping	Curtain Wall Panel Sealing	Caulking joints and seams—wood, metal, masonry	Sealing joints in siding—asbestos, metal, etc.	Setting Insulating Glass	Chanel or Stop Glazing (Wood or Metal)	Glazing Steel Sash—Interior	Glazing Steel Sash—Exterior	Glazing Aluminum Sash	Glazing of Bronze or Galvanized Bonderized Steel Sash	Glazing Wood Sash—Primed	Glazing Wood Sash—Unprimed
DAP Rubber Based Compound	●	●	●	●	●	●	●						
DAP 1231 Mastic Glazing Compound			●			●	●						
DAP Twin-T-Mastic Tape				●		●	●						
DAP Twin-T-Mastic				●	●	●	●						
DAP Caulking Compound				●	●								
DAP Caulking Compound—Black Tite				●	●								
DAP 1012 Glazing Compound								●	●	●	●		
DAP Metal Glaze								●	●				
DAP Armglaze Type M												●	●
DAP Steel Sash Putty								●	●				
DAP Casement Putty								●	●				
DAP Pure Linseed Oil Putty												●	
DAP White Lead Putty												●	

A.I.A. File No. 26-B-2

The Dicks-Armstrong-Pontius, Inc., with its 150 years of combined skills, resources and experience, offers to the construction industry a complete line of quality sealing and glazing compounds.

In these products, performance for curtain wall sealing has received particular attention, as well as general glazing problems and conventional caulking needs.

Architects and Engineers can specify DAP Products with complete confidence that the product will not only perform for them as expected, but also that DAP, Inc. stands ready to assist them in any or all problems of sealing.

DAP exercises rigid production control over all materials, to assure those who specify or use our products a uniform, well balanced product for top performance as an effective seal.

DAP maintains outside weather testing racks in Florida, California and the Mid-West to further assure quality performance to all areas.
DAP offers quick, efficient service from nine (9) regional branches to quickly take care of the needs of our users.
DAP Products scheduled on the front cover application chart and described in this brochure, can be specified with complete confidence of performance.
DAP invites inquiries for additional information on our products and especially as to use of our service regarding recommendations for particular jobs. DICKS-ARMSTRONG-PONTIUS, INC., GENERAL OFFICES, DAYTON, OHIO

DAP FOR CAULKING COMPOUNDS

Dap Gun Grade Caulking Compound. Highest quality raw materials, blended to provide a protective, air-tight water-tight joint between wood, metal or masonry. Will not harden, crack, shrink, sag, chip, peel or crumble. Not damaged by vibration, reasonable structural movements or weather changes. Will not bleed, stain, or discolor most building materials. Will meet Federal, State and Municipal uses. Available in Brilliant White, White, Gray and aluminum pigmented. Available in cartridges and all standard containers. Conforms to Federal Specification TT-C-598, Grade I.

DAP Knife Grade Caulking Compound. Same fine quality, and with all the superior performance characteristics as DAP Gun Grade, produced in knife grade consistency. Applies easily. *Meets Federal Specification TT-C-598, Grade II.*

(*Architect shall insert name of type compound required.)

DAP Black-Tite Caulking Compound. Another exceptional product from DAP research and experience. A tough black Caulking Compound, asphalt base. Adheres tightly and permanently to any dry surface. Will not sag, bleed or pull away. Can be used where conventional compounds could not perform under extreme vibration, expansion, contraction, heat or cold. Has outstanding weathering ability and can be used not only for conventional caulking, but for a permanently weather-tight seal in conjunction with flashings or roof repair as well. Black-Tite is available in cartridges or all standard bulk containers and can readily be covered with two coats of any oil based paint after it has set. Will not burn, bleed or stain through. Conforms to Federal Specification SS-C-153, Type I.

DAP Flexiseal Rubber-Based Compounds. A superior caulking compound for construction work of all types. With Balanced Modulus Control, adhesion is greater than cohesion, assuring superior seal under most severe conditions.

Specifications

Caulking Compounds. All areas indicated by architectural drawings requiring sealing by caulking material, shall be filled within one-half inch of surface with Oakum or tarred rope. Surfaces should be clean and dry. Apply DAP Quality Caulking Compound as manufactured by Dicks-Armstrong-Pontius, Inc. To increase long life expectancy, the painting of caulking compound after protective skin has formed, is recommended, except where DAP Flexiseal Rubber-Based Compound is used.

DAP FOR WOOD SASH GLAZING

DAP Armglaze Type M is a scientifically formulated and proven compound for the glazing of primed or unprimed wood sash, as well as sash treated with water-repellent toxic solutions.

The Elastic properties of Armglaze Type M withstands the rough handling and shipment of mill glazed sash soon after glazing, without sagging or losing its bond.

The accepted and recognized fact of Armglaze Type M superiority makes this material available from practically any Wood Sash Manufacturer or Jobber throughout the country.

DAP Pure Linseed Oil Putty For Primed Wood Sash. Highest quality, 100% pure linseed oil; imported pigments and driers. Hard setting, will not crack, sag, chalk or bleed. Must be painted when surface sets, or within four weeks. Meets Federal Specification TT-P-781A, Type I.

DAP White Lead Putty. For use where highest quality work and stone hardness are desired. Contains 100% Linseed Oil with 5% to 10% (or any specified percentage) of white lead. Will not crack, sag, chalk or bleed. Putty must be painted when surface sets, or within four weeks. 10% White Lead Putty meets Federal Specification TT-P-791A, Type II.

Specifications

*Note: Architect shall select type material required for wood sash putty from one of the paragraphs below numbered *1, *2 and *3.

*1 All glazing compound for wood sash shall be DAP ARMGLAZE—TYPE M as manufactured by Dicks-Armstrong-Pontius, Inc. for *primed* or *unprimed* wood sash, mill or job glazed.

*2 All putty for wood sash shall be DAP—PURE LINSEED OIL PUTTY for *primed* wood sash.

*3 All putty for wood sash shall be DAP WHITE LEAD PUTTY for *primed* wood sash. (Percentage of white lead desired should be noted.)

Sash shall be dry and clean, and putty shall be thoroughly mixed and applied by expert glaziers in a neat, smooth and workmanlike manner. All sash and putty shall be given the protection of 2 coats of paint, extending to and touching the glass. Paint putty immediately after it is set, or within 4 weeks after installation.

DAP FOR CURTAIN WALL CONSTRUCTION

DAP Flexiseal Rubber-Based Compound (THIOKOL*). Consists of a Polysulphide Base Compound and Accelerator 10-2-1 mix by weight. Formulated for Balanced Modulus to give greater adhesion than cohesion, to insure peak performance for extreme expansion, contraction and resistance to weather. Designed to use by hand or pressure gun. Sets in 4 to 12 hours—cures in 24 to 48 hours, depending upon temperature and humidity.
Full cure of Flexiseal presents a rubber-like consistency, making Flexiseal an ideal sealant for curtain wall construction. Formulated with THIOKOL* liquid Polymer base, a truly remarkable pigmented compound, sets to a rubber-like consistency when accelerator is added.
Write to DAP, Inc. for a complete technical catalog.
*Trade mark of THIOKOL Chemical Corporation.

Specifications

Recommended Glazing Procedure. All glazing materials are to be used as a sealant against weather and in no case can be a load-bearing material. Proper use of Setting and Spacing Blocks on large glass units or panels must be used to prevent excessive movement and permit a full seal around the glass or panel.

On small lites, proper use of glazing clips to hold glass secure in sash is necessary. For best results all bedding should be ⅛" thick as a MINIMUM between the glass or panels and sash.

Contractor for Curtain wall construction shall seal all vertical and horizontal joints with DAP Flexiseal Rubber Based Compound, manufactured by Dicks-Armstrong-Pontius, Inc.

Apply compound using an approved caulking gun to all panel joints as indicated on the curtain wall details and wall sections. All metal or other materials to receive DAP Flexiseal Rubber Based Compound shall be dry and clean to insure perfect adhesion.

Install the compound in strict accordance with the manufacturer's printed instructions.

DAP Mastic Glazing Compound 1231 for Channel Glazing or Stop Glazing. A special product for setting glass and panels in channel or stop glazed sash. Developed by DAP, Inc. research and experience, as a superior compound containing a high content of non-drying resins to give greater adhesion and cohesion necessary for today's construction sealing.
Adheres to metal, glass, porcelain, wood and most building materials.
Will not bleed, sag, crack or become hard, but remains pliable to absorb the flexing, expansion, contraction and resistance to weather.
Can be applied by knife or pressure gun.
1231 for channel or stop glazing only. Not recommended for face glazing.
Excellent for the setting of twindow or thermopane. Also, as a bedding material for all settings.
Forms its own tough, durable surface skin for weather resistance.
WRITE FOR TECHNICAL DATA INFORMATION.

Specifications:

Scope of Applications

(Architect shall itemize required applications from the following:)
For stop-glazed Wood sash; —channel or stop-glazed Metal sash; —Bedding for Insulating glass; —Curtain Wall Panel Sealing.
All sash and glass, curtain wall panels, etc., shall be clean and dry.
Apply DAP Mastic glazing compound 1231, as manufactured by Dicks-Armstrong-Pontius, Inc.
Compound shall be applied as delivered in manufacturers sealed container by experienced glaziers in accordance with the best glazing practice.

Consult us on special glazing or sealing problems.

DAP FOR METAL SASH GLAZING

DAP Metal Glaze for interior and exterior glazing of steel sash. A glazing compound which provides exceptional service in extreme conditions of moisture or vibration. Sets up quickly, firmly—remains *elastic.*

DAP Steel Sash Putty—for glazing steel sash, primarily interior use, will not crack or bleed and should be protected by two coats of paint, extending to and touching glass within four weeks after application or after putty has properly set.

DAP Casement Putty—formulated particularly for outside glazing of steel sash. Fast setting and highly durable to withstand outside exposure. This putty must be painted within four weeks after application, or after putty has properly set.

DAP—1012 Aluminum Gray Glazing Compound. 1012 Compound for aluminum sash face glazing, either exterior or interior use. Does not require painting and matches aluminum sash perfectly. Adheres tightly to sash and glass and retains flexibility to resist vibration, shock, moisture, heat and cold. Will not crack, chip or powder.

1012 Glazing Compound can be used with equal success on steel sash, hot dipped, bonderized, galvanized steel sash, stainless steel or bronze sash.
For channel or stop glazing, see No. 1231 Mastic.
1012 Aluminum Glazing Compound fully conforms to new interim Federal Specification TT-G-00410, which is based on a performance requirement.

Specifications:

Architect shall select product to be specified from the following as each applies to type required from paragraphs *A *B *C & *D.
*A All glazing compound for Interior and Exterior glazing of steel sash shall be DAP Metal Glaze as manufactured by the Dicks-Armstrong-Pontius, Inc. Compound shall be thoroughly mixed and applied without the addition of any other materials.
*B All steel sash putty for interior glazing shall be DAP Steel Sash Putty as manufactured by Dicks-Armstrong-Pontius, Inc. Thoroughly mix and install putty as it comes from the container. However, a small amount of volatile may be added if thinner consistency is desired.
*C All putty for outside glazed steel sash shall be DAP Casement Putty as manufactured by the Dicks-Armstrong-Pontius, Inc. Putty can be applied as it comes from the container or a small amount of volatile can be added.
*(*Note: Compound 1012 can be substituted for the products specified for "A", "B", or "C" above.*)
All sash and putty shall be given the protection of 2 coats of paint, extending to and touching the glass. Paint putty immediately after it has set but no longer than 4 weeks after glazing.
*D All glazing material for aluminum sash shall be DAP Aluminum gray glazing compound No. 1012. Compound shall be thoroughly mixed and applied without the addition of any other materials.

DAP TWIN-T-MASTIC EXTRUSIONS

DAP Twin-T-Mastic Tape. Available and extruded in various widths and thicknesses and packaged in rolls for fast, easy application. For sealing raw edges of insulated panels and curtain wall construction, setting insulating glass and large area plate glass in wood or metal sash where stops are employed. Particularly adaptable for mill glazed units. High content of non-oxidizing, non-drying resins. Twin-T Mastic Tape retains its elasticity under extreme exposure—won't crack, harden, bleed or sag. Provides a permanent water-tight and weather-tight seal when used as a gasket material which is held in place by continuous mechanical pressure.

Write DAP, Inc. for recommendations concerning special applications where particular consistencies or formulations are required for mastic extruded tapes.

Specifications:

DAP Twin-T-Mastic Tape

All "stop type" shop-glazed sash, where pressure can be applied, shall be set and sealed using DAP Twin-T-Mastic Tape as manufactured by Dicks-Armstrong-Pontius, Inc. Sash shall be clean and dry.

Prior to setting the glass, firmly press the tape in place along the fixed stop. Overlap all joints in the tape at least ½".

Set and block the glass in place, then apply a second strip of Twin-T-Mastic tape to either the glass or the removable stop, overlapped at the corners; press stops in place to insure seal before final fastening. Trim off excess tape to provide a finished installation.

DAP FEDERAL SPECIFICATION PUTTIES AND COMPOUNDS

Caulking Compound

Federal Specification TT-C-598, Grade I
(Gun grade)
Federal Specification TT-C-598, Grade II
(Knife grade)

Metal Sash

Interim Federal Specification TT-G-00410.
(An elastic glazing compound for interior and exterior glazing)
Federal Specification TT-P-781-A, Type II
(A metal sash putty for interior and exterior glazing)

Wood Sash

Federal Specification Putty TT-P-791-A, Type I
(A pure linseed oil and whiting putty)
Federal Specification Putty TT-P-791-A, Type II
(A pure linseed oil, whiting, and 10% white lead putty)

DAP OTHER PRODUCTS

In addition to the products described in this bulletin, Dicks-Armstrong-Pontius, Inc. also manufactures a number of other products for special applications. Following are some of these:

Bedding Compounds

Boiler Putties

Bowl Setting Compounds

Chlorine Putty

Coach Sealing Compounds

Core Putty

Kwik-Seal Bath Tub and Tile Sealer

Painters' White Putties

Plumbers' Putty

33 Elastic Glazing Compound

SPECIAL PRODUCTS

We have complete, modern facilities for developing special compounds to meet special requirements. Write our general offices if we can help you solve any glazing, sealing, or caulking problem.

DAP RECENT INSTALLATIONS

Metropolitan Life Ins. Co. Housing Projects, New York, N.Y.

Alcoa Building, Pittsburgh, Pennsylvania

Fulton National Bank Building, Atlanta, Georgia

Ternstedt Div. of General Motors Addition, Columbus, Ohio

Prince Georges General Hospital, Washington, D.C.

Rosedale Apartment Hotel, Memphis, Tennessee

Commerce Building, Washington, D.C.

State Office Building, Pittsburgh, Pennsylvania

North Carolina State Fair Arena, Raleigh, North Carolina

Shamrock Hotel, Houston, Texas

Stonestown Development, San Francisco, California

DAP

DICKS-ARMSTRONG-PONTIUS, INC. • General Offices: Dayton, Ohio

factories in: Dayton, Ohio • Melrose, Massachusetts • Alexandria, Virginia • Decatur, Georgia • Tampa, Florida
Chicago, Illinois • Dallas, Texas • Richmond, California • Xenia, Ohio

WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF PUTTIES GLAZING—CAULKING—SEALING COMPOUNDS

Thiokol®

POLYSULFIDE BASED SEALANTS

ELASTOMERIC SEALANTS WITH ADHESION AND EXPANSION PROPERTIES



A 2-Part Sealant, Easily Applied with Conventional Caulking Equipment

Thiokol polysulfide based sealants provide a unique bonding action, adhering to all types of structural materials. The elastomeric properties of this sealant overcome the expansion variables in material due to thermal changes, as well as resist weathering and vibration. Easily applied with conventional caulking guns, polysulfide based sealants provide long term assurance against joint leakage.

General Application Instructions

The type of surface, of course, dictates the specific preparatory work required. Generally, for wood or metal, all evidence of foreign material must be completely removed. Dry, clean surfaces are required prior to application. If there is evidence of oil on the surface, it must be wiped with a cloth dipped in a solvent such as xylene. If protective film has been used on aluminum surfaces, it must be removed. No primers are required on most metals or on glass. On masonry and wood, primers are normally used to secure proper bonding. However, it is advisable to consult a representative of a manufacturer of THIOKOL polysulfide type sealants to be certain whether or not a primer is required for the type material specified.

Typical Properties of Polysulfide Sealants

Available Colors: Standard colors are gray, black and aluminum. Special colors are available (gold, red, blue, green)
Set time at 75°F: 2 to 6 hr
Time to complete cure at 75°F: 24 to 48 hr
Elongation: Minimum 150%[a]
Shore-A hardness: 15 to 45[c] depending on choice of fillers
Adhesion in tension: Minimum 10 psi[a]
Adhesion in peel: Minimum of 10 lbs per inch[b]
Water absorption: Negligible after 4 days immersion at 75°F
Service temperature: −65°F to +250°F

a—conducted on simulated 2" x ½" x ½" joint assemblies

b—conducted following ASTM test procedures

c—suggested hardness range



For Curtain Wall Structures

For more than five years polysulfide type sealants have been used for sealing starter panels, mullions and window frames in major curtain wall buildings. Available in a wide range of colors, they provide tight gripping, long lasting cushioning seals.



School Buildings

With the large expanse of curtain walls used in present day schools, polysulfide based sealants provide the surest way to seal multi-material composition against leakage, and to compensate for the variances in erected mechanical joints. Long protection, plus the attractiveness of complementary colors and advantage of on-the-spot custom sealing makes polysulfide a standard for this field.



Commercial Buildings

From factories to supermarkets, present day building joints are best sealed on-the-spot to protect against weathering, industrial atmosphere and building vibrations.

Thiokol CHEMICAL CORPORATION
Trenton 7, New Jersey

Geodetic



The ability of liquid polysulfide based sealants to flow into varying size joints, fill these voids and cure to a flush surface that will withstand movement, has made this type sealant a "must" in geometrically designed buildings. On Kaiser domes and virtually all of the present day plastic and metal structures of this nature, the joints are sealed with Thiokol polysulfide sealants.

Concrete

For bonding between concrete slabs or sealing metal/wood to concrete, polysulfide type sealants give a permanent bond, unaffected by extreme environmental conditions.

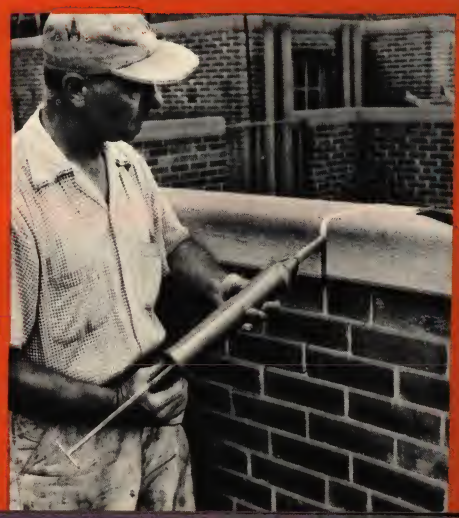


Copings

On copings, these sealants make possible a new type of flexible water-tight seal that will not harden or drop out and is unaffected by vibration or wind buffeting.

For Proper Application on Masonry

The masonry must have been set at least 28 days before any sealant is applied and all laitance must be removed. The masonry must be dry, dust-free, all extraneous matter removed and must be primed and sealed in accordance with manufacturer's recommendations.





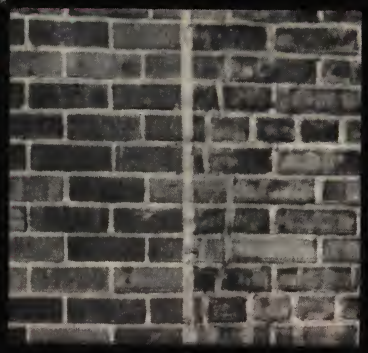
A. Due to freezing and building movement, cracks of this nature can develop vertically on the building.



B. A sawed joint is made with the loose block material.



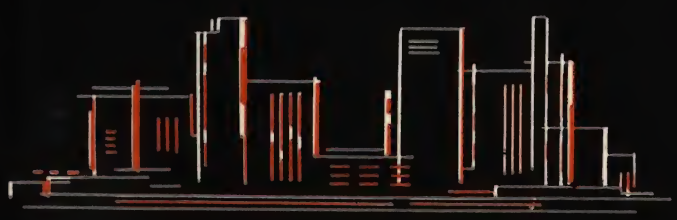
C. A final expansion joint is shown ready for sealing.



D. With the polysulfide firmly bonded to each side of the opening, this joint is permanently weather resistant.

Expansion joints

A polysulfide elastomeric expansion joint can provide a safety factor to allow for building thermal changes and at the same time prevent the seepage of water which could freeze and cause cracking of the building walls. Shown here is an illustration of how building cracks can be remedied and expansion joints provided.



Sealing glass

Polysulfide type sealants have the advantage of adhering to glass, as well as other structural material presenting a weatherproof bond and also, act as a cushioning agent for large expansions of glass. These flow in place sealants also minimize problem spots caused by irregularities in glass.



Sealing stone

Polysulfide sealants have excellent adhesion to stone. They provide a permanent, flexible seal that can expand at least 150% over its original dimension without failure. These sealants will not flow or harden under extreme temperature conditions.

Where extremely light-colored or porous stone is used, it has been found that certain adhesive additives used in many compounds may cause "pinking" of the stone. Discoloration can be avoided by the use of a proper primer to obtain the desired adhesion while eliminating certain specific adhesive additives from the polysulfide compound.

There are certain precautions that must be observed in this type of application:

1 Proper surface preparation before applying the sealant. The joint must be properly cleaned and all surface dirt, oil, or other extraneous material removed which would cause the sealant to fail due to lack of adhesion.

2 Use proper application procedures for sealing white marble and light stone.





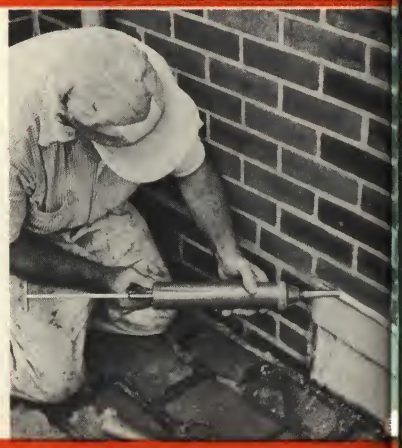
Sealing sidewalks

Sidewalks, building and plant floors will last longer, cost less to maintain when sealed with Thiokol liquid polymer-base compounds. These sealants resist chemicals, oils and solvents. They withstand vibration from trucking and heavy machinery. Sealants stay flush and bonded, will not become tacky over a wide temperature range. These sealants allow the flooring materials to expand and contract with temperature changes.



Sealing pipes

Flexible, highly durable Thiokol liquid polymer-base compounds are ideally suited for sealing pipe joints. They resist water and chemicals and have outstanding impermeability to gases. Thiokol liquid polymer-base compounds effectively seal pipe passages, sealing out dust and odors. Their cushioning action dampens vibration of pipes and provides a flexible gasket over a long period of time.



Sealing flashings

Sealants based on Thiokol liquid polymers can be easily applied to form a permanent weatherproof joint, replacing cold solder, pitch or other materials. These sealants are easy to apply and give lasting protection.

Thiokol Chemical Corporation is the manufacturer of the raw material only and does not manufacture a finished sealant.

The following is a partial listing of processors of polysulfide sealants. This list is intended as a guide and not as a recommendation or qualification and should not be used as a basis for acceptance or rejection of compounders' products. For local sources, contact the processors listed.

PROCESSORS

ARMSTRONG CORK COMPANY
Lancaster, Pennsylvania

CARBOLINE COMPANY
32 Hanley Industrial Court
St. Louis 17, Missouri

CHEM-SEAL CORPORATION
12910 Panama Street
Culver City, California

CHURCHILL CHEMICAL COMPANY
3127 East 26th Street
Los Angeles 23, California

COAST PRO-SEAL & MFG. CO.
2235 Beverly Blvd.
Los Angeles, California

DICKS-ARMSTRONG-PONTIUS, INC.
Box 999
Dayton, Ohio

H. B. FULLER COMPANY
Resiweld Department
255 Eagle Street
St. Paul 2, Minnesota

A. C. HORN COMPANIES
2133–85th Street
North Bergen, New Jersey

DAVID E. LONG CORPORATION
220 East 42nd Street
New York 17, New York

MINNESOTA MINING & MFG. CO.
900 Bush Avenue
St. Paul 6, Minnesota

PARR PAINT COMPANY
18312 Syracuse Avenue
Cleveland, Ohio

PECORA INCORPORATED
4th & Sedgley Avenue
Philadelphia, Pennsylvania

PRESSTITE-KEYSTONE
ENGRG. PRODUCTS COMPANY
39th and Chouteau Avenue
St. Louis, Missouri

PRODUCTS RESEARCH COMPANY
3126 Los Feliz Blvd.
Los Angeles, California

L. SONNEBORN SONS, INC.
404 4th Avenue
New York 16, New York

STEELCOTE MFG. COMPANY
3418 Gratiot Street
St. Louis, Missouri

THE TREMCO MFG. COMPANY
8701 Kinsman Road
Cleveland, Ohio

W. F. WEBSTER CEMENT CO.
224 Thorndike Street
Cambridge, Massachusetts

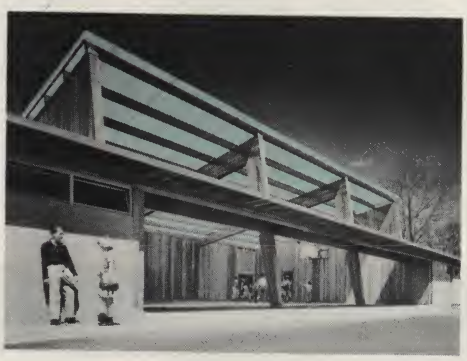
Thiokol

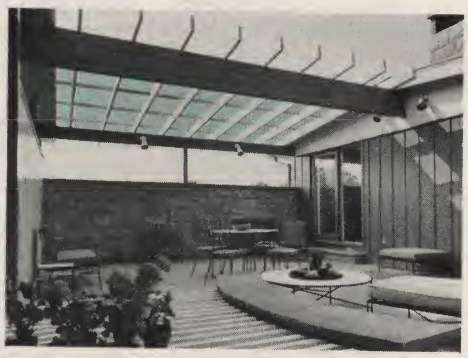
CHEMICAL CORPORATION
780 North Clinton Avenue
Trenton 7, New Jersey

modern versatile building material

Alsynite® FIBERGLASS PANELS









ALSYNITE translucent fiberglass panels are the modern way to obtain efficient lighting and durable beauty in homes, offices or plants . . . with minimum maintenance. These tough, shatterproof panels are available flat, corrugated and in a variety of other shapes.

SUPERGLAZE is one of the important advantages offered by Alsynite. Superglaze is a new, exclusive formulation that gives Alsynite panels far greater resistance to weathering and erosion than any other panel on the market today. Accelerated weathering tests for the equivalent of 6 to 8 years failed to affect Superglazed Alsynite. In addition, tests proved that Superglaze adds even greater strength to these tough, versatile building panels.

FILTRON 25, available in residential corrugated and Steplap® panels, solves the problem of radiant heat transmission. Filtron 25 actually reduces radiant heat transmission in residential panels to as low as 20% of that transmitted by ordinary translucent panels.

ARCHITECTURAL SPECIFICATIONS

1. Panels shall be of uniform appearance and free of structural defects.

2. Panels shall have a nominal thickness of .060″ and average weight shall be 8 oz. per sq. ft. ±10%. Industrial Flat Panes shall have a nominal thickness of .080″ and average weight shall be 9 oz. per sq. ft. ±10%. Average glass reinforcement shall be 25% by weight.

3. Corrugations shall be _____ (1¼″ x ¼″, 2½″ x ½″, 2.67″ x ⅜″, 4.2″ x 11/16″, 5V Crimp, 5.3″ V-Beam, Steplap or Flat) and where specified shall nest with standard corrugated material.

4. Color shall be _____, with a radiant heat transmission of _____%. Light transmission shall be _____% when tested in accordance with ASTM 1494-57T. (See chart on inside pages of this folder for transmission figures.)

5. Panels shall show no loss of surface gloss nor evidence of exposed glass fibers after 1,000 hours of simulated accelerated weathering conditions in accordance with ASTM Method of Test E42-55T (Type D equipment).

A.I.A. FILE NO. 26-A-9

COMPLETE SPECIFICATIONS

LOW HEAT AND LIGHT TRANSMISSION PANELS

Colors	% Light Transmission	% Heat Transmission	Series	Weight Per Sq. Ft.	Thickness	Pattern	Depth	Surface
Blue	13	17	Riviera (#200 Superglaze)	8 oz.	.060″	2½″ Corr.	½″	Crinkle
Green	20	25						
Lime	14	18						
Pink	8	16						
Sand	12	17				5″ Steplap	⅜″	Smooth
White	30	25						
Yellow	33	26						
Blue	17	20	Saratoga	6 oz.	.045″	2½″ Corr.	½″	Crinkle
Green	29	35						
Lime	17	25						
Pink	11	25						
Sand	18	23						
White	41	33						
Yellow	37	34						
Blue	20	23	Sierra	5 oz.	.040″	2½″ Corr.	½″	Smooth
Green	31	39						
Lime	19	31						
Pink	12	27						
Sand	19	30						
White	48	35						
Yellow	39	39						

HIGH LIGHT TRANSMISSION PANELS

			#200 Superglaze	8 oz.	.060″	Flat		SBS (Smooth)
						1¼″ Corr.	¼″	SBS (Smooth)
Clear	81	53				2½″ Corr.	½″	SBS (Smooth)
Lite Blue	54	50						
Lite Green	73	50				4.2″ Corr.	1-1/16″	SBS (Smooth)
White	60	43				2.67″ Corr.	⅞″	SBS (Smooth)
						5.3″ V-Beam		SBS (Smooth)
						5-V Crimp		SBS (Smooth)
Light Green	75	55	#150 Industrial	6 oz.	.045″	1¼″ Corr.	¼″	SBS (Smooth)
White	65	50				2½″ Corr.	½″	SBS (Smooth)
Clear	85	60						

NOTE: *Industry tolerances prevail. Other corrugations, shapes and curved sheets*

FIRE-RETARDANT PANELS: Though standard fiberglass reinforced translucent panels are commonly regarded as fire resistant, they are technically termed a slow-burning plastic. For true fire-retardant (FR) panels, a special resin is used. These fire-retardant panels are technically termed a self-extinguishing material. This means that they will not support their own combustion. The material will burn if an exterior source of intense heat is continually applied to it, but it will not burn once this heat is removed.

FLAT PANES . . . . . *for industrial window glazing*

Alsynite Flat Panes are translucent, shatterproof fiberglass-reinforced window panes designed specifically for industrial glazing. Exclusive Superglaze surface for durability and beauty, pebbled for added strength and rigidity. Five built-in colors: Amber, Clear, Cool Aqua, Lite Blue and Lite Green.

FINISH — Pebbled both sides; Superglaze

DOUBLE STRENGTH — THICKNESS, .060″; **WEIGHT,** 8 oz. per sq. ft.

TRIPLE STRENGTH — THICKNESS, .080″; **WEIGHT,** 9 oz. per sq. ft.

SIZES — To match all standard metal sash. Widths from 8″ to 44″; lengths from 8″ to 96″.

COLORS	% LIGHT TRANSMISSION	% HEAT TRANSMISSION
Amber	49	46
Clear	70	49
Cool Aqua	43	39
Lite Blue	54	38
Lite Green	56	39

. . . . *for residential outdoor overhead use*

Guarantee	Filtron 25	Recommended Side Lap	Recommended Max. Span (Roofs)	Edge Position	Lengths	Widths	Panel Coverage	No. Corr. or Steps
10 Yr.	Yes	1 Corrugation	4′ 0″	Both Down	8′-10′-12′	26″ 34″ 40″	24″ 32″ 37⅜″	10 13 15
	Yes	Side: 1½″ End: 4″	2′ 6″		8′ 4″-10′ 4″	31½″ 41½″	30″ 40″	6 8
5 Yr.	Yes	1 Corrugation	3′ 6″	Both Down	8′-10′-12′	26″ 34″	24″ 32″	10 13
No	Yes	1 Corrugation	3′ 0″	Both Down	8′-10′-12′	26″	24″	10

. . . . . *for diffused lighting in partitions, screens, skylights, industrial daylighting*

10 Yr.	No		4 sq. ft.		4′-8′	24″-36″		
10 Yr.	No	1½ Corrugations	3′ 6″	1 Up, 1 Down	8′-10′-12′	26″	24″	20½
10 Yr.	No	1 Corrugation	4′ 0″	Both Down	8′-10′-12′	26″ 34″ 40″	24″ 32″ 37⅜″	10 13 15
		1½ Corrugations	4′ 0″	1 Up, 1 Down	8′ 4″	27½″	24″	10½
10 Yr.	No	1 Corrugation	4′ 6″	Both Down	8′-10′-12′	42″	37.8″	10
10 Yr.	No	1½ Corrugations	5′ 0″	1 Up, 1 Down	8′-10′-12′	35″	32″	13½
10 Yr.	No	1 V	5′ 0″	Both Down	7′ 6″-9′-10′ 6″	29″	26¾″	5½ V's
10 Yr.	No	2 Crimps	3′ 0″	Both Down	8′-10′-12′	26″	24″	
No	No	1½ Corrugations	3′ 0″	1 Up, 1 Down	8′-10′-12′	26″	24″	20½
No	No	1 Corrugation	3′ 6″	Both Down	8′-10′-12′	26″	24″	10

available on special order. Write for quotations.

F.M.

Alsynite FR panels with Superglaze for superior weather resistance are produced to the specifications of the Factory Mutual Laboratories. Only Factory Mutual labeled Alsynite panels are available with Superglaze.



Alsynite FR panels are also available with an Underwriters' Laboratories label indicating a very low flame spread rating of 60. Most building codes require a rating of 75 or below for fire-retardant materials. These panels are not Superglazed.

All high light transmission corrugations and shapes available in FR panels. Recommended color: Lite Green.

technical reports

FLAMMABILITY

When tested in accordance with ASTM Method of Test D635-56T, Alsynite has a flammability rate of 1.5 in./min. Tests conducted on Alsynite sheets installed as roofing and skylights indicate that burning brands may ignite the top surface of Alsynite, but the fire will not burn through and ignite the under surface of the panels.(For a copy of the complete report on this test, request Test Report T-2.)

LOAD STRENGTH

Series 200, 2½" corrugated Alsynite panels installed over supports 4' apart will support 150 lbs./sq. ft. on a 4' span with end supports only. This is three times the requirement of most building codes. Recommended spans for other corrugations and series as given in the table will provide similar load carrying ability, taking into account maximum desirable deflection. (Complete details available in Test Report T-27.)

SHATTERPROOF

One-inch ice particles projected at speeds up to 60 miles per hour against Alsynite panels did not damage the panels.(Complete details available in Test Report T-3.)

CHEMICAL RESISTANCE

Alsynite's excellent resistance to most acids, mild alkalies and petroleum based solvents allows its use in many corrosive atmospheres. Alsynite may be easily cleaned with detergent cleaning solutions without damage to its surface. (Complete details available in Test Report T-6.)

INSULATION VALUE

Alsynite has a thermal conductivity (K-factor) of 3 BTU/hr./sq. ft./in./°F, which is approximately one-half that of glass. Alsynite has a coefficient of heat transmission (U-factor) of 1.14 BTU/hr./sq. ft./°F. (Complete details available in Test Report T-7.)

PROTECTION AGAINST FADING

Alsynite acts to filter out the harmful solar rays which cause fading and discoloration in many fabrics. (Complete details available in Test Report T-10.)

IMPACT RESISTANCE

In a roof installation, sixty-pound bags of sand dropped on Alsynite panels from heights up to six feet caused no damage. Bags dropped from heights of 10 feet caused some crazing and small tears at the panel fasteners. In no case did the panel fail or tear loose from its supports. (Complete details available in Test Report T-14.)

PHYSICAL PROPERTIES

Alsynite fiberglass panels have a high strength-to-weight ratio, with tensile strengths of over 10,000 psi and flexural strength over 20,000 psi. (Complete details available in Test Report T-25.)

COEFFICIENT OF EXPANSION

Alsynite has a coefficient of linear expansion of 1.6×10^{-5} in./in./°F. This would amount to an expansion of approximately 3/16" in a 12' panel undergoing a temperature change of 100°F.

All tests conducted by Chemiglas, Inc., scientific research organization which conducts continuing tests for Alsynite. Write for literature or full test reports.

WINDOW PANES

Alsynite Flat Panes fit standard sash, eliminate costly breakage and provide light and heat control with glareless, diffused light. Built-in colors meet every daylighting problem.

SHOWERS, TUBS

Alsynite's Mist series was created for shower doors and tub enclosures. Delicate pastels are ideal for the modern bath. Shatterproof for perfect safety. Flat or corrugated panels.

DECORATIVE

Alsynite decorated with embedments of natural foliage can add the perfect design touch as a partition or room divider. Also ideal for showers. Homes, motels, hotels.

SPECIAL

Alsynite can be adapted to many special uses such as truck bodies, translucent sandwich panels, core panels and curtain walls. Curved sheets and other shapes on special order.

NEW DESIGN ASSISTANCE

Alsynite research division can provide technical assistance in new design projects, offering you detailed information on its full potential.

ALSYNITE COMPANY OF AMERICA
SAN DIEGO 9, CALIFORNIA
OTHER PLANTS:
PORTSMOUTH, OHIO
PATERSON, N. J.

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INDUSTRIAL



MULTIPLE



PERM-SEAL*

Engineered FILLER STRIPS

For Translucent Fiberglass Panels...

The Closure
MOLDED IN RUBBER
to Fit All Corrugations

- **POSITIVELY SEALS openings between corrugated panel and flat surfaces**
- **INEXPENSIVE INSULATION**
- **PERFECT BOND with gasket effect**
- **FLEXIBLE — conforms to variations in panel.**

A.I.A. FILE 26-A-9(1)

ASPHALT CORPORATION OF AMERICA

*Engineering in Rubber + Asphalt for Builders

DANVILLE, ILLINOIS, U. S. A.

T.M. REG. U.S. PAT. OFF.

PERM-SEAL FILLER STRIPS

What they are—

Perm-Seal Filler Strips, also called Closure Strips, are accurately molded in rubber, soft rubber, or asphalt to fit the corrugations of today's popular building materials—fiberglass panels, aluminum, steel, asbestos and glass sheeting, 5-V crimp roofing and ribbed siding. They fill the openings between these materials and the structural framing.

How PERM-SEAL Closures are Used with Fiberglass Panels

The rapidly expanding use of fiberglass panels has greatly increased the demand for Perm-Seal Filler Strips. They are recommended by leading panel manufacturers, are specified by discerning architects, and are eagerly accepted and used by alert builders.

Plastic panels generally require moldings or trim when used in modern building construction. The corrugations of the panels leave spaces which must be filled and Perm-Seal, being especially engineered for the job, does it neatly, quickly and economically!

The following pages and pictures give further details concerning the wide adaptability of Perm-Seal to fiberglass panel construction.

How Long PERM-SEAL Protects

Whether they are used inside or outside, Perm-Seal Rubber Filler Strips will last the life of the building. They retain their accurate fit and proper resiliency wherever they are installed—in tropic heat or arctic cold. They are moisture proof and insect-proof. They require NO maintenance once they are properly installed.

Physical Properties

The "soft rubber" used in strips recommended for fiberglass installations was especially compounded for these less-rigid materials. It resists temperature changes, water, moisture, oil and industrial fumes.

It tested 20% to 25% better aging and longer flex-life than ordinary rubber. It has complete recovery after being compressed under ordinary applications.

Where to Buy PERM-SEAL

The particular Filler Strips generally required for fiberglass installations are usually stocked by manufacturers and distributors of the panels themselves. If your supplier does not regularly stock them, he can quickly supply you on special order from the Asphalt Corporation.

RECOMMENDED BY LEADING MANUFACTURERS



INTERIOR PARTITIONS

are made more secure and more neatly trimmed with Perm-Seal Filler Strips. They fit quickly into place. Instantly you have a permanent seal against drafts, dust, and noise. Paint them as you paint the molding.

ECONOMICAL — because they're cost saving

Perm-Seal actually costs as little as one-tenth as much as other contoured molding. Saves installation time, too! Can be quickly cut to varying lengths. Requires no costly hand caulking. Leaves no gaps to fill between molding and panel. Needs no attention later on—a neat, tight job right from the start!

When fiberglass panels are used for patio and porch, Perm-Seal serves a dual purpose. It helps prevent crazing and cracking as well as insulating and weatherproofing.





Perm-Seal is the difference between "getting by" and doing a really attractive job. Just see how trim these protective strips look in an installation!

POSITIVELY SEALS ALL OPENINGS

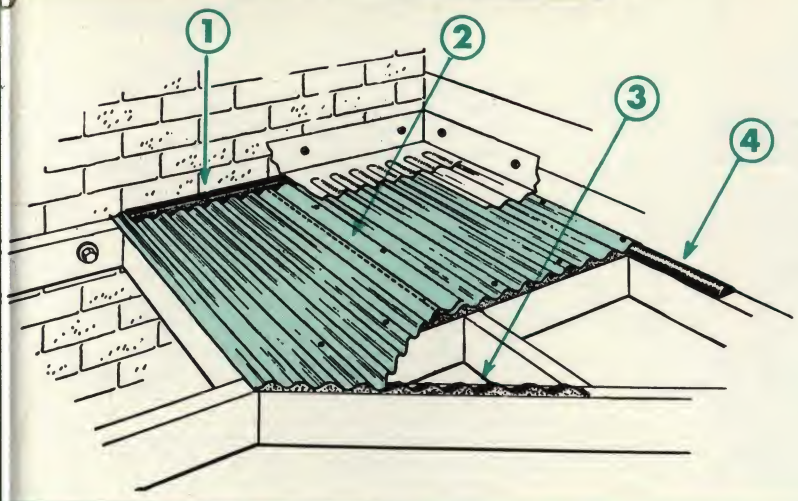
You get absolute security wherever the corrugated panel joins a flat surface. Even diagonal joints may be fitted with Perm-Seal Strips cut to order to the angle called for by the specifications. Costly caulking, the old-fashioned way to close these gaps, is supplanted by modern, molded-to-fit Perm-Seal.

PERM-SEAL MERITS (AND WINS) APPROVAL

Keeping pace with the development of fiberglass construction, Perm-Seal already has years of proven performance. Just ask the manufacturers of the panels you are using.

Nearly every leading manufacturer recommends Perm-Seal for use with his products. Many of them supply these filler strips with the panels—as an essential part of the construction "package". See that your next job includes these valuable accessories.

CONSTRUCTION DETAILS



PERM-SEAL Closures

Shown in detail is a suggested method of installing a fiberglass covering over a terrace or breezeway. Similar construction features are adaptable to other building requirements.

(1) Perm-Seal Filler Strip fits **across** corrugations. These may be nailed or bolted in place or, better, cemented with Perm-nent Clear Cement.

(2) Perm-nent Clear Cement is also used to seal the laps of fiberglass panels. This gives a transparent, waterproof, warp-resistant lap.

(3) For diagonal framing, use diagonally cut Filler Strips (these are special-order items and their need and angles should be anticipated in advance).

(4) Longitudinal (or vertical) type Perm-Seal Filler Strip is placed along the end corrugation.

ARCHITECT'S SPECIFICATIONS & DETAILS

A few representative applications of Perm-Seal Filler Strips are detailed at the right. Your own experience will remind you of many more.

TIGHTLY FILLS AND SEALS

Wherever there's an opening or gap in preformed fiberglass panel installations, there's a Perm-Seal Filler Strip to close it—tightly, permanently and economically. The soft rubber of these strips readily conforms to the slight variations in panels due to installation stresses.

MAY BE PAINTED TO MATCH

Perm-Seal, when properly primed with a latex paint (ask about our Perm-nent Latex Paints), will accept any finish coat. Thus, your finished job will look smooth and be in complete color harmony with the decor of the room or exterior.

PUT PERM-SEAL INTO YOUR SPECIFICATIONS

The following will help you include Perm-Seal products in your specifications. The wording can be readily adapted to suit your particular job.

CLOSURES FOR PANELS

"Wherever filler (closure) strips are called for on drawings or schedule of parts and/or specifications, Perm-Seal Rubber Filler Strips in the types and sizes or corrugations detailed, and as manufactured by the Asphalt Corporation of America, Danville, Illinois, shall be used."

CEMENTING LAPS OF PANELS

"For interior and exterior applications of fiberglass panels, side and end laps shall be cemented with a bead of Perm-nent Clear Cement, as manufactured by the Asphalt Corporation of America, Danville, Illinois. This bead shall be 1/16" thick and 1/2" wide."

CAULKING PANELS

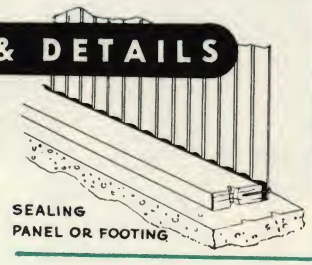
"For caulking wherever necessary for waterproofing flashing or overlapping joints, a bead of Perm-nent Rubber Mastic, as manufactured by the Asphalt Corporation of America, Danville, Illinois, shall be applied."

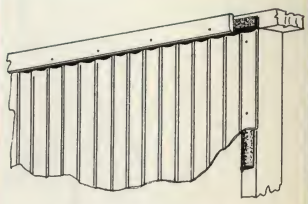
PERM-SEAL HAS WIDE ADAPTABILITY

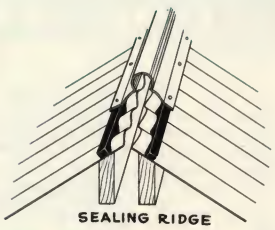
There are over 70 standard patterns of Perm-Seal Filler Strips. This particular folder deals especially with their use with fiberglass materials, but there are especially-engineered strips for ALL types of corrugated materials—aluminum, steel, asbestos and glass. See Sweets 8b/As for additional data. Also write for 12-page brochure and price lists.

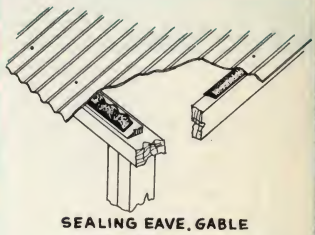
ASPHALT CORPORATION SPECIALIZES IN CLOSURES

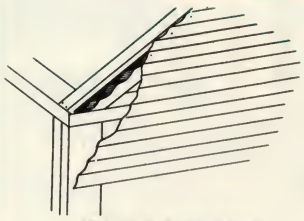
The Asphalt Corporation of America, founded in 1925, specializes in the engineering, development and manufacture of filler strips and cell closures for corrugated building materials. This is our full-time job. We are the ONLY manufacturer of a complete line of rubber and asphalt closures. You can depend on Perm-Seal and Perm-nent Products.

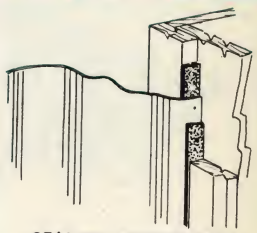

SEALING PANEL OR FOOTING

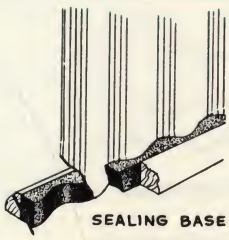

SEALING PARTITIONS

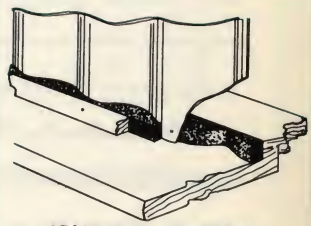

SEALING RIDGE

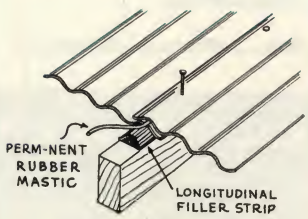

SEALING EAVE, GABLE OR SKYLIGHT


SEALING DIAGONALS

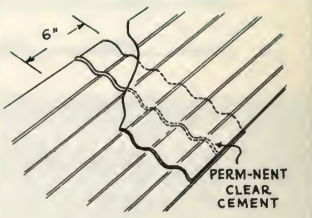

SEALING WINDOW PANEL


SEALING BASE


SEALING WINDOW PANEL



SEALING PANEL LAP



SEALING PANEL LAP

PERM-SEAL *is Easily Installed*

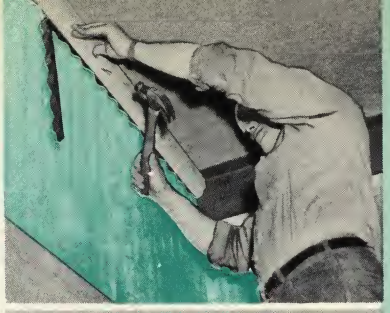
As corrugated material is nailed, bolted or screwed into place, the workman simply inserts the proper Perm-Seal Filler Strips. With that, construction is trim and weather-tight.

Nailed or bolted—even the fastener's shank is permanently sealed. Every corrugation is bolstered against crazing or flattening in fastening.

Perm-Seal eliminates expensive, bulky caulking. It is especially valuable when erecting (or replacing) fiberglass skylights. Use it inside and out for a quick, perfect seal.

Perm-Seal Filler Strips come neatly packed in corrugated cartons. The number you require can be readily determined in advance and there need be NO waste. Strips coincide in length with the accepted standards of the corrugated panels to which they are applied. They cut easily with a sharp knife.

Perm-nent Adhesives are recommended for maximum efficiency in construction. Perm-nent Clear Cement is particularly valuable when erecting fiberglass panels. It is relatively easy to handle, though quick-set.







PERM-SEAL *Adhesives Complete the Job...*



Though designed especially for use with corrugated panels and filler strips, Perm-nent Adhesives will make a good, permanent bond between practically any construction materials. For use with fiberglass materials we recommend the following:

PERM-NENT *Clear Cement* CM-1198

A translucent adhesive made of synthetic resins. Designed particularly for use with translucent plastic panels. Use where panels lap each other or other corrugated sheeting. Adheres to plastics, wood, metal and other building materials. Sets to a tough, resilient film that is completely light-stable, waterproof and sunproof.

PERM-NENT *Rubber Mastic* RM-99

An all-latex insulating and sealing cement that keeps its rubbery qualities after full set. Use it to cement corrugated sheets together . . . to join filler strips at butt ends . . . to equalize extreme variations between sheeting and framing to give a watertight seal . . . and as a super-plastic caulk. Blue gray on application; rubber-black after set. Available in knife and gun grades.

HOW TO SELECT THE PERM-SEAL CLOSURE FOR YOUR PANEL

1. Look for the Pattern

Look at the edge of your corrugated sheet or panel. Find the same "profile" in the scale drawings of filler strips shown in Column (1). Drawings are scaled 1 inch to 1 foot.

2. Measure Corrug. Width

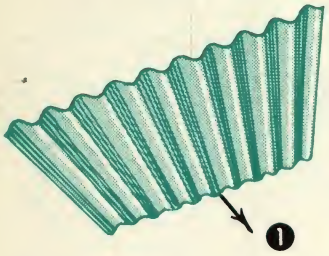
Check your corrugated material for distance from the highest points of two adjacent corrugations. In the example shown, the width of corrugation is 2.66". See Column (2).

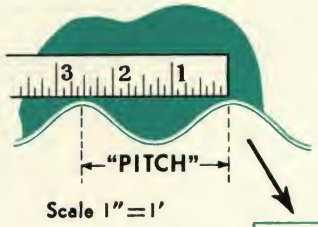
3. Measure Corrug. Depth

Determine the depth of corrugation of your sheeting by measuring at the "valley." Find your measurement in Column (3). Then decide what width of strip is best and order accordingly.

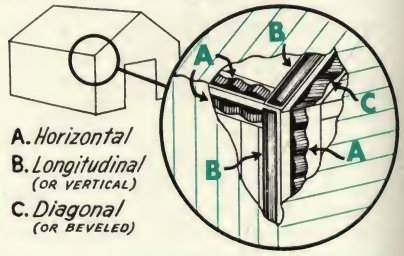
4. Figure Lineal Footage

From your plans determine lineal feet of each type of strip required. Order by footage; we will ship required number of strips. Specify the angle-degrees for diagonal strips.

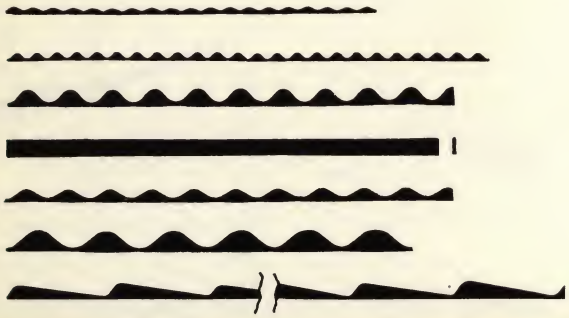








Shown here are only a few of the more than 70 different Perm-Seal Filler Strips. See our Price List for the complete line.



② Width of Corrug.	③ Depth of Corrug.	④ Item Number	Standard Width	Overall Length	Number Strips per Package	Weight of Package
1.25"	1/4"	AC-125	1"	24"	120	31 lbs.
1.25"	3/8"	RE-125	1"	30"	160	60 lbs.
2.67"	13/16"	RA-267-1	1"	28"	70	52 lbs.
.....	.....	RST-320-1	1"	27"	150	43 lbs.
2.66"	9/16"	RST-551-S	1"	28"	88	43 lbs.
4.2"	1-1/16"	RR-4.2	1-1/2"	25.2"	48	54 lbs.
6.5"	7/8"	RC-6.5	1"	39-1/2"	80	65 lbs.

FOR ADDITIONAL INFORMATION

Write to us for data on specific applications, complete physical properties, technical data sheets, and engineering drawings of strips, as well as samples of Perm-Seal Filler Strips and Perm-nent Adhesives.

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ASPHALT CORPORATION OF AMERICA

Engineering in Rubber + Asphalt for Builders

TELEPHONE DANVILLE 2320 DANVILLE, ILLINOIS



THE NEW FORCE IN BUILDING MATERIALS

BARCLITE

TRANSLUCENT FIBERGLASS REINFORCED PANELS

FLAT

2½" x ½"

5V-CRIMP

3" x ½" STEP-DOWN CRINKLE FINISH

DESIGNERS' GROUP

2·67" x ⅛" AND 4.2" x 1·1·16"

BARCLITE FIBERGLASS PANELS

UNLIMITED USES LASTING BEAUTY UTILITY



Skylights and Sidelights



Patios, Carports and Awnings



Barns and Greenhouses



Railings and Fencing

Shatterproof Barclite Translucent panels *represent a new force in building materials that offer unlimited design possibilities — functional and decorative — on all types of construction.*

Manufactured under the highest quality control standards, Barclite is able to take full advantage of the 'free' daylight yet remove the harmful, glaring qualities of raw sunlight. Barclite ***diffuses the light evenly*** *in all directions.*

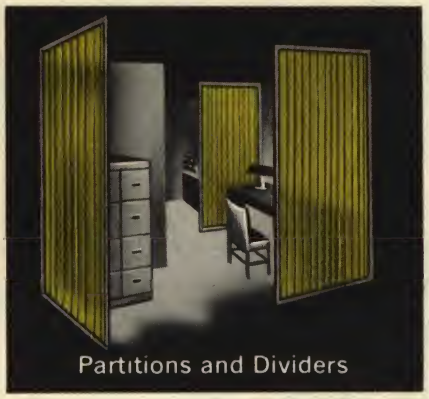
Too, with ***Infrablok©*** *— an exclusive heat-blocking ingredient — Barclite* ***remains cooler*** *... longer and, at the same time, effectively* ***reduces the sun's infra-red heat*** *penetration.*

Barclite is recommended for maximum light distribution ... maximum light transmission ... maximum beauty with protection ... with minimum cost for installation and maintenance.

Available in many styles (corrugated, flat, step-down and 5 V-crimp), surface finishes (smooth and crinkle) and colors (14).



Glazing



Partitions and Dividers

STRENGTH SHATTER RESISTANCE



Will support over 100 lbs. per sq. ft. Resists damage from vibrations, rocks, hail stones.

EASY TO INSTALL



Extremely light in weight. Can be cut, sawed, nailed or drilled with simple, everyday tools.

TRANSLUCENT COLORS



Light and Infra-red heat transmission can be varied with our wide range of colors.

CHEMICAL RESISTANCE



Will not rust, scale, mildew or rot. Inactive and immune to most acids, alkali and chemicals.

FIRE RESISTANCE



BARCLITE is reinforced with heavy non-combustible fiberglass mat serving as a shield.



GOOD HOUSEKEEPING GUARANTY



UNDERWRITERS LABORATORIES APPROVAL ON STANDARD, FR BARCLITE



SOCIETY OF THE PLASTICS INDUSTRY



FACTORY MUTUAL APPROVAL ON FR BARCLITE



25 YEARS OF LEADERSHIP

Barclite exceeds all requirements of U. S. Department of Commerce's Commercial Standard CS-214-57.

Barclite is in Compliance with the Southern Standard Building Code.

BARCLITE ARCHITECTURAL SPECIFICATION GUIDE *

SERIES	CORRUGATION (INCHES)	PANEL WIDTH (INCHES)	COVERAGE WIDTH (INCHES)	PANEL LENGTH (FEET)	SIDE LAP	FINISHES		CORRUGATIONS	NESTING DATA (WILL MATCH)	COLORS (BLOCK #)
						SURFACES	EDGES			
600 Nominal thickness .06" Nominal Panel Weight Per Sq. Ft. 8 oz. Fiber Glass Content Per Sq. Ft. Minimum 2 oz.	2½ x ½	26	24	8, 10, 12	1	smooth	both dn	10	standard 2½" metal corr. sheets	1
		*27½	24		1½	smooth	1 up 1 dn	10½		1
		*33½	29⅜		1½	smooth	1 up 1 dn	12½		1
		34	32	8, 10, 12	1	crinkle	both dn	13		2
		40	37⅜		1	crinkle	both dn	15		2
		40	37⅜	8, 10, 12	1	smooth	both dn	15		1
	Step-down 3 x ½	41½	—	11'9"	—	crinkle	1" lips	13 steps	—	2
	Flat	26	—	8, 10	—	smooth	—	—	—	3
		36	—		—	smooth		—	—	3
		44	—		—	smooth		—	—	3
		26	—	8, 10, 12	—	crinkle	—	—	—	2
		36	—		—	crinkle		—	—	2
	2.67 x ⅞	35	32	8, 10, 12	1½	smooth	1 up 1 dn	13½	standard 2.67 x ⅞ alum. corr. sheets	crystal green
		47	45⅓		1	smooth	both dn	17½		
	4.2 x 1-1/16	42	37-4/5	8, 10, 12	1	smooth	both dn	10	4.2 asbestos corr. sheets	crystal green
	5V-Crimp	26	24	8	2V's	smooth	both dn	—	with matching 5V-Crimp metal sheets	crystal green
	1¼ x ¼ Corrug.	26	24	8, 10, 12	1½	smooth	1 up 1 dn	20½	standard 1¼" metal corr. sheets	1
	1¼ x ¼ Fluted	*32	—	10	—	smooth	both dn	26	will fit ¼" channel framing	1
500 Nominal thickness .045" Nominal Panel Weight Per Sq. Ft. 6 oz. Fiber Glass Content Per Sq. Ft. Minimum 1½ oz.	2½ x ½	26	24	8, 10, 12	1	smooth	both dn	10	standard 2½" metal corr. sheets	1
		34	32		1	crinkle	both dn	13		2
		40	37⅜		1	crinkle	both dn	15		2
	Step-down 3 x ½	41½	—	11'9"	2	crinkle	1" lips	13 steps	—	2
	1¼ x ¼ Corrug.	26	24	8, 10, 12	1½	smooth	1 up 1 dn	20½	standard 1¼" metal corr. sheets	1
	1¼ x ¼ Fluted	*32	—	10	—	smooth	both dn	26	will fit ¼" channel framing	1

FIRE RETARDANT (FR) BARCLITE — Specify when building codes require Underwriters' Label (flame spread under 75) or Factory Mutual Approval. These panels will not support combustion, will not ignite below 800°F. and are self-extinguishing on removal of flame source. **FR Barclite is available in all standard sizes, shapes, weights and colors on special quantity order.**

* Available on special quantity orders only—as are other non-standard sizes, weights and colors.

BLOCK NO. 1	% TRANSMISSION	
COLORS	LIGHT	INFRA-RED
Ice Clear	87	61
Crystal Green	77	50
Dawn Gray	54	28
Palm Yellow	48	25
Melon Green	40	36
Sea Isle Rose	33	22
Milky White	30	8
Lagoon Blue	20	20

BLOCK NO. 2	% TRANSMISSION	
COLORS	LIGHT	INFRA-RED
Lanai Yellow	48	12
Lanai White	35	6
Lanai Lt. Green	34	38
Lanai Green	25	32
Lanai Red	4	41

BLOCK NO. 3	% TRANSMISSION	
COLORS	LIGHT	INFRA-RED
Ice Clear	87	61
Crystal Green	77	50
Horizon Blue	70	64

Composition: Barclite is composed of approximately 73% light stabilized polyester resins with 27% glass reinforcement by weight.

Chemical Resistance: Barclite is immune to effects of moisture, brine and sea air; will not rust, scale, mildew or rot; is not affected by mild acid or alkalies or most industrial fumes.

Fire Resistance: Barclite withstands sparks, cinders, lighted cigarettes on its surface without igniting. Approximately 800°F. is necessary to cause ignition. The glass fibers serve as an inorganic, non-combustible flame barrier.

Tensile Strength: Average over 15,000 lbs. per square inch.

Flexural Strength: Average 30,000 lbs. per square inch.

Impact Resistance: Barclite exhibited no appreciable damage under a simulated hail test of 60 mph.

Thermal Conductivity: K Factor–1.5. BTU per sq. foot/inch thickness/hour/°F.

Barcol Hardness: 50-55.

* *In specifying Barclite, simply supply the Series Number,*

Corrugation Size, Panel Width, Panel Length, Surface Finish and Color.

BARCLITE DESIGNERS' GROUP

TRANSLUCENT DECORATIVE VERSATILE

This new series combines the exquisite natural beauty of delicate fabric patterns and Japanese shoji designs with the remarkable qualities of Barclite. ***Actual leaves,*** *ferns, butterflies, gold lace and other beautiful designer fabrics are* ***permanently fused*** *in Barclite* ***translucent*** *fiberglass reinforced panels forming unusually lovely designs.*

Barclite decorative panels *softly diffuse natural or artificial light and add an airy spacious look to any decor. Barclite panels are equally* ***versatile*** *for home, industrial and commercial use. They make handsome room dividers, partitions, portable shoji screens, indirect lighting panels, sliding doors, dropped ceilings, underlit table tops.*

They also ***add an elegant atmosphere*** *in reception rooms, lobbies, offices, hotels, shops and dining area.*

Barclite decorative panels are ***easy to install.***



Unusual treatment for cabinet doors.



New elegance for partitions.



Exciting new ceiling treatments.



Decorative screen that adds charm and beauty.



Intimate charm added in reception areas



Kitchen cabinet doors and space divider

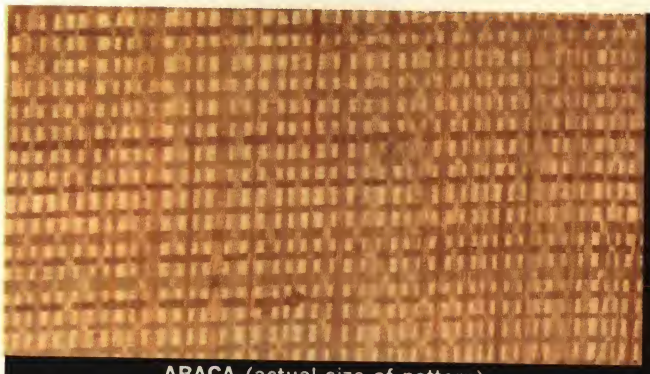
PATTERNS	STYLE	SIZE
****ABACA**—Woven Cane	Flat Flat	36″ x 72″ 36″ x 96″
***AUTUMN WOOD**—Random Pattern, Butterflies and Assorted Leaves w/Metallic Flecks	Flat	36″ x 72″
***JAPANESE GARDEN**—Scenic Design, Butterflies and Foliage (Metallic Flecks at bottom panel)	Flat	24″ x 72″
***OUR TOWN**—Illustration of Manhattan's Brownstone Buildings—in Color	Flat	36″ x 72″
Illustration of Manhattan's Brownstone Buildings—in Black and White	Flat	36″ x 72″
***STAINED GLASS**—Venetian Stained Glass Motif	Flat	36″ x 72″
***THREAD OF GOLD**—Gold Diamond	Flat Flat 1¼″ Corrug.	26″ x 96″ 36″ x 72″ 26″ x 96″
***WILD FERN**—Random Ferns	Flat	36″ x 72″

NOTE:

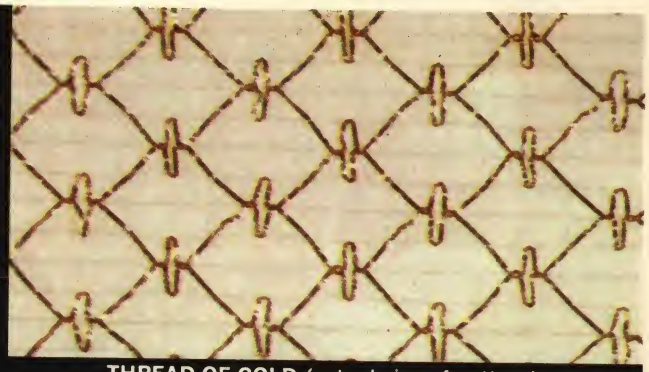
1) The color of all panels is Ice Clear and the finish is smooth on both sides.
2) The nominal thickness of lightweight-non-structural is 5/128″, heavyweight-structural is 3/32″.
*3) These patterns are available in lightweight-non-structural and heavyweight-structural thickness.
**4) Abaca is only available in heavyweight-structural.

BARCLITE DESIGNERS' GROUP DECORATIVE PATTERNS

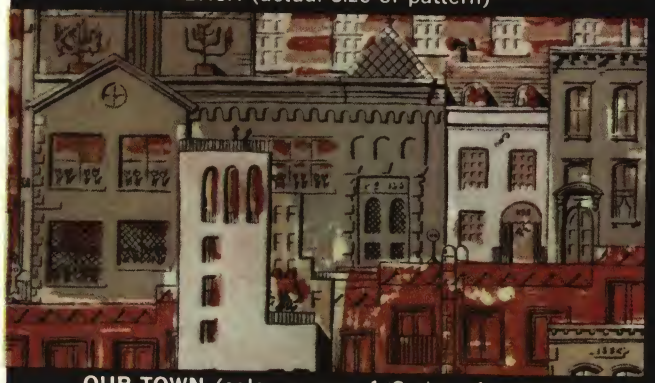
Barclite decorative fiberglass panels are ***Translucent.*** *Barclite is lightweight, easy to maintain, easy to work into room dividers, portable screens and partitions, patios, coffee table tops, office reception room panels, restaurant booth dividers, hotel lobby partitions and beauty parlors.*



ABACA (actual size of pattern)



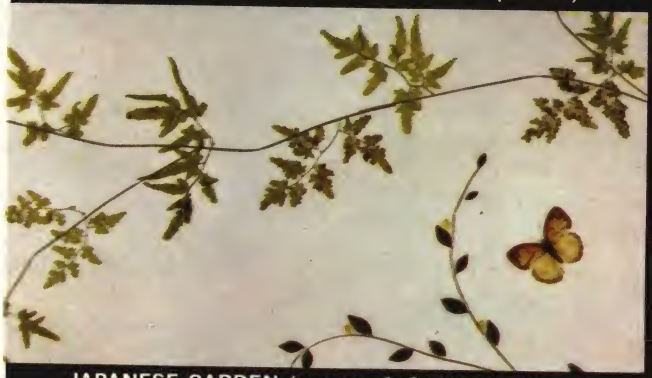
THREAD OF GOLD (actual size of pattern)



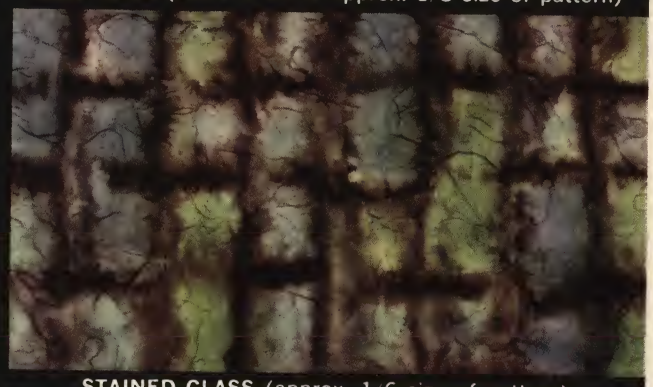
OUR TOWN (color approx. 1/8 size of pattern)



OUR TOWN (Black & White approx. 1/8 size of pattern)



JAPANESE GARDEN (approx. 1/6 size of pattern)



STAINED GLASS (approx. 1/6 size of pattern)



AUTUMN WOOD (approx. 1/6 size of pattern)



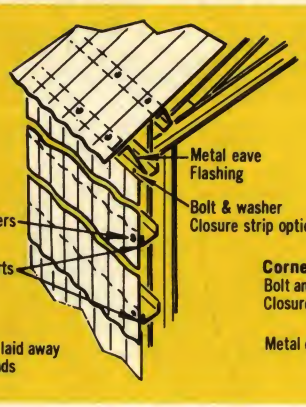
WILD FERN (approx. 1/6 size of pattern)

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BARCLITE INSTALLATION DETAILS

METAL BUILDING CONSTRUCTION

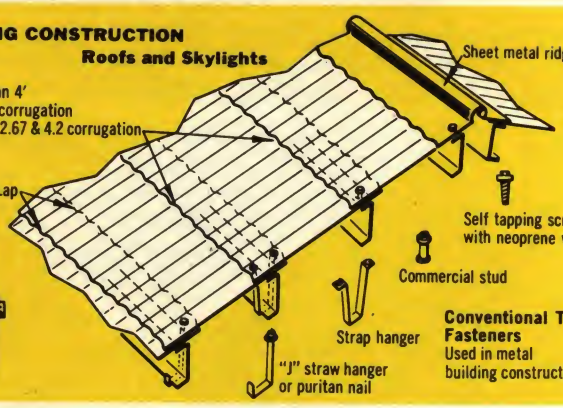
Sidelights



Corner Assembly Detail
Bolt and washer 12" to 16" CC
Closure strip optional

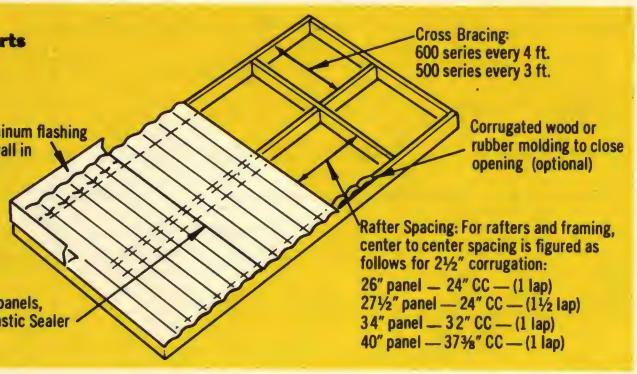


Roofs and Skylights

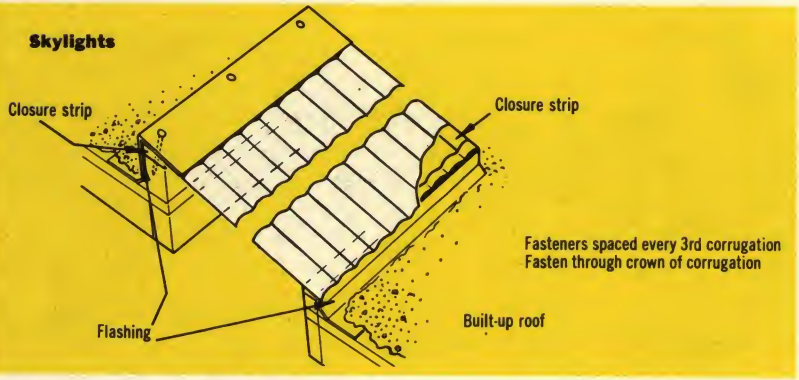


Conventional Type Fasteners
Used in metal building construction

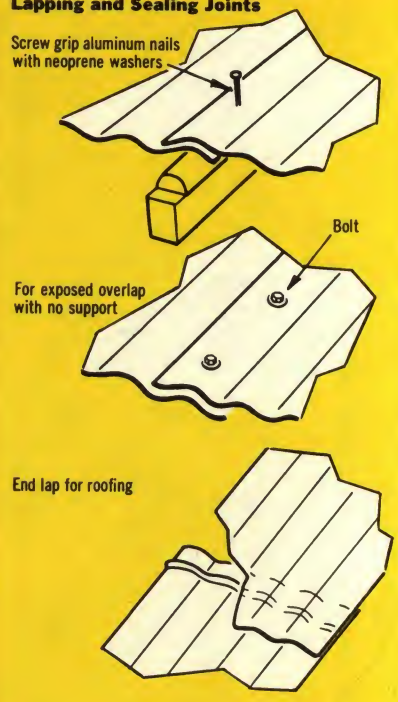
Patios, Car Ports



Skylights



Lapping and Sealing Joints



BARCLITE ACCESSORIES



CLEAR MASTIC SEALER
Clear, non-yellowing, wherever a waterproof weatherproof seal is required. Coverage approximately 50 lineal ft. per pint. Pints, quarts, gallons available.



CORRUGATED STOPS
Wood and Rubber. For sealing across corrugations between panel and supporting member.





NAILS & SCREWS
Full assortment. Weatherproof aluminum screw nail with neoprene washer (9½ gauge x 1¾" long); No. 10 x 1¾" round-head aluminum screw; No. 14 x 1½" hexagonal headed stainless steel self-topping screw with weatherseal neoprene washer.



BOLTS
No. 10 x ⅜" round head slotted aluminum machine screw with two weather-seal washers with a No. 10-24 hex-cap nut.

MAIN OFFICE AND PLANT

Barclite occupies 200,000 square feet of manufacturing space in the Barclay Building; strategically located and equipped to make direct shipments by water, rail or highway to assure better service.

BARCLITE CORPORATION OF AMERICA

An Affiliate of Barclay Manufacturing Company, Inc.

385 GERARD AVENUE • BARCLAY BUILDING • NEW YORK 51, NEW YORK

FORM NO. BI-60-121 (200M/B&M)

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Unlimited Uses for FILON®

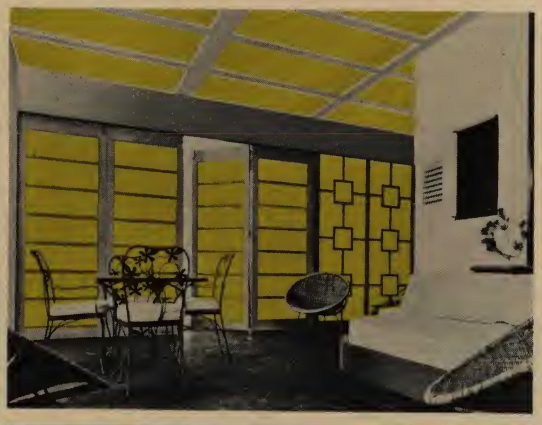
Reinforced Fiberglass-and-Nylon Plastic Panels

EXCLUSIVE GUARANTEE

- Superior Fiberglass and exclusive Nylon reinforcement for greatest strength
- Uniform thickness and corrugation for better installation and uniform diffusion of light and color
- Shatterproof for absolute safety
- Weatherproof for maximum durability and lasting beauty
- Maximum color stability through use of finest quality resin and pigments
- Exceeds Commercial Standard CS 214-57 issued by the U. S. Department of Commerce
- Only FILON panels are produced with the continuous electronically controlled Patented Process, U. S. Patent Number 2784763

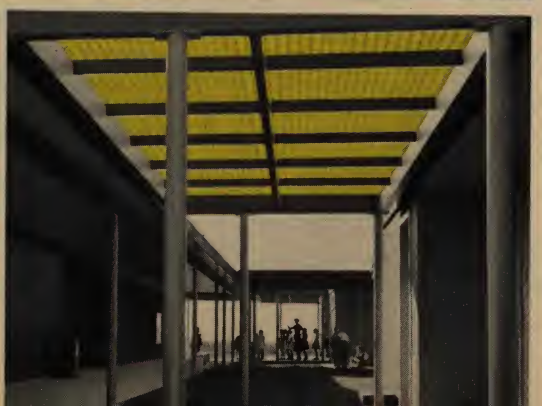


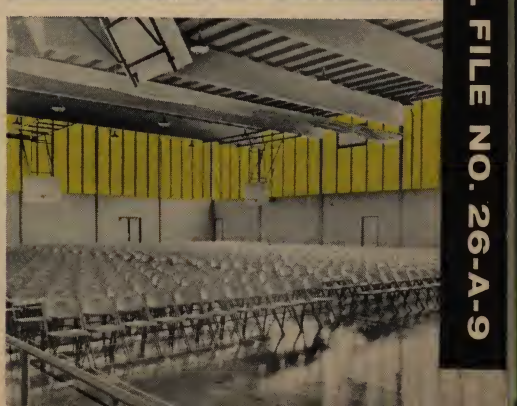






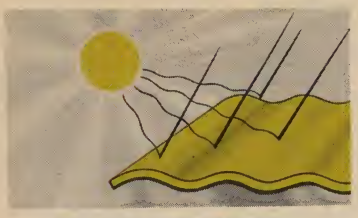






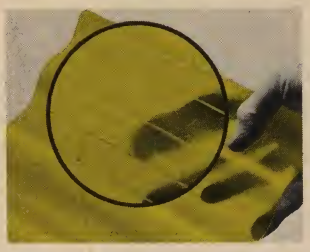
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FOR STRENGTH, BEAUTY, LONG LIFE — Specify *FILON*®



FILON HAS HEAT CONTROL

THERMOBLOK, FILON's newly developed heat control additive is built-in to six exclusive colors for maximum coolness. THERMOBLOK colors are specifically recommended for patio roofs and awnings. For evaluation of THERMOBLOK colors, see Heat and Light Transmission Values Chart, below.



FILON HAS EXTRA STRENGTH

In addition to the Super-Fi Fiberglas, parallel nylon strands, as shown in this magnified view, assure greater strength, and superior over-all quality. (See Loading Strength Data, below.)



FILON HAS UNIFORM THICKNESS

Uniform thickness assures maximum durability, even dispersion of glass fibers, resins and color, and perfect diffusion of light. This feature also eliminates premature failure at all fastening points.



FILON HAS UNIFORM CORRUGATION

A good nesting overlap is essential for a weather-tight, waterproof seal. This proper overlap is assured in all FILON panels by perfectly uniform corrugation — a result of built-in quality control.

TECHNICAL DATA

WEATHER RESISTANCE
FILON is impervious to all weather conditions. Resists mild acids, salt water and corrosion. Does not warp, rot or buckle. Accelerated weather tests equivalent to many years of actual exposure show virtually no deterioration or appreciable change in color.

FIRE RESISTANCE
Falling embers, cigarettes or sparks will not ignite FILON. Fiberglas, an important part of Filon panels, has well known fireproof properties. These glass fibers act as a barrier, retarding flame spread, and a direct flame of 850 degrees is necessary before FILON will burn.

ACID RESISTANCE
FILON is resistant to most chemicals normally found in industrial buildings. It is recommended for use in the presence of water, mild acids, hydrocarbons, alcohols, peroxides, carbonates, and diluted halogens.

SHATTER RESISTANCE
FILON has impact strength of approximately 30 ft. lbs. per inch of notch by the Izod impact test method. It resists vibration and/or shock, will not shatter when struck by falling objects or other hazards.

MOISTURE RESISTANCE
FILON immersed in water at 100° F. for 7 day periods remained visibly unchanged in laboratory tests.

MAINTENANCE FREE
FILON has a *super-smooth* surface on both sides which cannot collect or hold dust and dirt. Thus, maintenance is held to a minimum. An occasional light hosing is all the care normally necessary. And since colors are built in to last, FILON panels require no painting.

THERMAL EXPANSION
Has approximately same coefficient of expansion as aluminum or 1.6 x $10.^{-5}$ in./in./° F.

TENSILE STRENGTH—17,000 to 18,000 psi.
FLEXURAL STRENGTH—33,000 to 35,000 psi.
HARDNESS RATING—Barcol 55 to 60
FLEXURAL MODULUS—1.6 psi. x 10^6

CODE APPROVALS
FILON meets minimum building code requirements of state, county and municipal building departments. Approved for use by all federal agencies and armed services.

COMMERCIAL STANDARD
FILON types 260 and 900 are guaranteed to comply with Commercial Standard CS214-57, issued by U.S. Department of Commerce.

HEAT AND LIGHT TRANSMISSION VALUES

In percentage ranges of all FILON colors
Compared With Air — Also Shown Is Single Strength Window Glass

TYPE	% Heat Transmitted	% Light Transmitted
Air	100%	100%
SS Window Glass	88	89
THERMOBLOK COLORS		
Canary	20-23	25-30
Beige	25-28	10-15
Dusty Peach	29-33	23-32
Snow	30-34	55-60
Shamrock	31-34	16-21
Tangerine	33-36	15-20
MEDIUM LIGHT TRANSMITTING COLORS		
Nile Green	34-39	37-42
Yellow	37-43	57-63
Turquoise	50-54	35-41
Forest	51-56	20-25
Emerald	51-56	37-46
Coral	57-66	47-56
Green	60-68	52-58
Aquamarine	62-67	42-47
HIGH LIGHT TRANSMITTING COLORS		
Frost	57-67	73-79
Jade	61-68	70-77
Clear	63-68	79-84

TEST METHODS USED IN PREPARING THESE CHARTS

- **Light Transmission:** Measured with S.P.I. Transmissometer having light source of Daylight Deluxe Cool White and Blue fluorescent bulbs.
- **Heat Transmission:** Measured with 250-Watt Infrared light bulb and Wheelco Potentiometer #311.
- The information contained herein is presented in good faith but no warranty is given and all figures are approximate. Proper construction and adequate ventilation are necessary considerations. Refer to the "Guide to Coolness" section of FILON Folder #151.

UNIFORM LOADING STRENGTH

Type	Thickness	Weight per Sq. Ft.	Corrugation	Unsupported Span	Load Lbs. per Sq. Ft.	Maximum Deflection
150	.037	5 oz.	2½"	3 Ft.	150 lbs.	5"
180 and 600	.045	6 oz.	2½"	4 Ft.	112 lbs.	$4\frac{11}{16}$"
260 and 900	.060	8 oz.	2½"	4 Ft.	180 lbs.	5¼"
280	.060	8 oz.	2½"	4 Ft.	148 lbs.	5⅛"
320	.075	10 oz.	2½"	4 Ft.	300 lbs.	$5\frac{11}{16}$"

With lateral supports and proper nailing, this uniform loading strength of FILON is considerably higher.

OUTDOOR WEATHERING CHART

Shows FILON's superior resistance to weather elements and moisture.



Samples were put through accelerated weather and exposure tests equal to years of actual outdoor use, such as immersion in water at 100° F for seven days, and subjected to severe, prolonged punishment for continuous 24-hour periods in Sun and Wind Machine.

LOAD CARRYING CHART

Proves FILON's greater strength.



COMPETITOR "A" *COMPETITOR "B"* ***Super-Smooth FILON***

Greater strength and high quality are the result of FILON's uniformity and perfect nesting corrugation.

GENERAL SPECIFICATIONS

ALL FILON panels with super-smooth finish both sides

STANDARD PANELS

PANEL SHAPE	TYPE NO.	COLORS	FINISH LENGTH (Feet)	FINISH WIDTH / COVERAGE WIDTH (Inches)	NO. OF CORRUGATIONS	STD. SIDE LAP	FINISH OF EDGES	WEIGHT PER SQ. FT.	THICKNESS
1¼" CORRUGATION (¼" deep, 1¼" pitch)	180	Jade, Clear, Green	8, 10, 12	26/24	20½	1½ Corr.	1 Up 1 Down	6 oz.	.045
	260							8 oz.	.060
2½" STANDARD (12" coverage, 9/16" deep, 2.66" pitch)	150	Beige*, Canary*, Dusty Peach*, Shamrock*, Snow*, Tangerine*, Aquamarine, Clear, Coral, Emerald, Green, Yellow	4, 5, 6, 8, 10, 12	26/24, 34/32	10 13	1 Corr. (Except 27½ width 1½ Corr.)	Both Down (Except 27½ width 1 Up 1 Down)	5 oz.	.037
	180	Beige*, Canary*, Dusty Peach*, Shamrock*, Snow*, Tangerine*, Aquamarine, Clear, Coral, Green, Emerald, Forest, Jade, Nile Green, Turquoise, Yellow	4, 5, 6, 8, 10, 12	26/24, 34/32, 27½/24 (Jade only)	10 13 10½			6 oz.	.045
	220-S	Available in all colors. See Special Important Notes, below.	8, 10, 12	26/24, 27½/24, 34/32, 40/37⅜	10 10½ 13 15			7 oz.	.052
	260	Dusty Peach*, Snow*, Aquamarine, Coral, Clear, Nile Green, Green, Emerald, Forest, Turquoise, Jade, Yellow	4, 5, 6, 8, 10, 12	26/34, 34/32, 40/37⅜, 27½/24 (Jade only)	10 13 15 10½			8 oz.	.060
2.67" CORRUGATION (⅞" deep, 2.67" pitch)	260-S	Jade, Clear	8, 10, 12	33¾/32, 35/32	13 13½	1 Corr. 1½ Corr.	Both Down 1 Up 1 Down	8 oz.	.060
3" CORRUGATION (¾" deep, 3" pitch)	180-S	Jade, Clear	8, 10, 12	30¾/ 27	10	1½ Corr.	1 Up 1 Down	6 oz.	.045
	260-S			37/33¼	12			8 oz.	.060
4.2" CORRUGATION (1 1/16" deep, 4.2" pitch)	260-S	Jade, Clear	8, 10, 12	42/37.8	10	1 Corr.	Both Down	8 oz.	.060
3" SHIPLAP (7/16" deep, 3" pitch)	180	Dusty Peach*, Snow*, Emerald, Yellow	4, 5, 6, 8, 10, 12	24¾/23½	8	1 Leg	1 Up 1 Down	6 oz.	.045
5V CRIMP (½" deep, 1" pitch, 26" coverage)	180-S	Jade, Clear	8, 10, 12	26/24	5 V	2 V's	Both Down	6 oz.	.045
FLAT PANELS	120	Emerald, Snow, Yellow	30" x 50 Lin. Ft. (Rolls only)					4 oz.	.030
	180	Clear, Coral, Green, Frost, Snow, Yellow	4, 5, 6, 8, 10, 12	24, 30, 36				6 oz.	.045
	260			36				8 oz.	.060
DECORATIVE FLAT	120 Dec.	Snow, Frost and Clear; with Gold and Black Jackstraw Pattern	30" x 50 Lin. Ft. (Rolls only)					4 oz.	.030
PANELS FOR SHOWER DOORS, TUB ENCLOSURES, PARTITIONS, CABINETS, AND LIGHTING FIXTURES	180 (1¼"x¼" Corr.)	Flesh, Frost, Snow, Lite Yellow, Powder Blue	30" x 60" 30" x 120"					6 oz.	.045
	320 FLAT	Frost	24" x 62" 24" x 124" 30" x 60" 30" x 120"					10 oz.	.075
GLAZING PANES	G-30	Green, Frost, Clear	13⅝" x 17⅝", 18⅝", 19⅝", 20⅝" 14⅝" x 17⅝", 18⅝", 19⅝", 20⅝" 15⅝" x 19⅝", 20⅝", 21⅝"						

Always insist on the FILON label



FIRE RETARDANT PANELS**

TYPE NO.	WIDTH (Inches)	LENGTH (Feet)	WEIGHT SQ. FT.	THICKNESS
600-S	26, 27½	8, 10, 12	6 oz.	.045
900-S	26, 27½ 34, 40		8 oz.	.060
900-S	33¾ 35	8, 10, 12	8 oz.	.060
900-S	30¾ 37	8, 10, 12	8 oz.	.060
900-S	42	8, 10, 12	8 oz.	.060
900-S	24, 30, 36	8, 10, 12	8 oz.	.060

SUPER† FILON

THICKNESS .060 WEIGHT 8 oz.

TYPE NO.	WIDTH (Inches)	LENGTH (Feet)
280	26 34 40	8, 10, 12
280	24, 30, 36	8, 10, 12
	48	8

ADDITIONAL FILON BROCHURES AND HOW-TO-BUILD DATA SHEETS

Order by number from FILON Architectural Service Department, 333 N. Van Ness Avenue, Hawthorne, California

- #137 Industrial Jses
- #140 Greenhouses
- #145 Interior Ideas
- #151 Outdoor Living Ideas
- #152 Farm Uses
- #154 Technical Manual
- #501 Glazing Data Sheet
- #502 Shoji Screen Data Sheet
- #503 Awning Data Sheet
- #504 Patio-Carport Data Sheet
- #505 Fence Data Sheet

****FIRE RETARDANT PANELS**

These panels have flame spread rating 40 to 75. They will not support combustion. They extinguish themselves upon removal of source of flame. For installations where building codes specifically require flame spread rating under 75.

COLORS IN ALL TYPES: Clear, Green, Aquamarine, Amber.

FM

Underwriters Laboratories Inc. INSPECTED PLASTIC

†SUPER FILON

Armor Plated Finish with Fiberglas Surfacing Mat on Both Sides.

COLORS:

Stocking: Snow.

Special Orders:

Aquamarine, Clear, Coral, Dusty Peach, Emerald, Green, Forest, Jade, Nile, Green, Turquoise, Yellow.

SPECIAL IMPORTANT NOTES

SPECIAL LENGTHS over 12 feet in all standard configurations and types are available, minimum order 12 panels, maximum length 24 ft.

SPECIAL COLORS in all standard configurations and types, mill run only, minimum order 1,000 sq ft. per color. Special colors also available in non-stocking configurations and types, subject to minimum order requirements for those items.

SPECIAL PANELS to match Galbestos, Steelbestos, 5.25 V-Beam, also 4" rib, 8" rib and 4" shiplap. Available in panel weights of 5 oz., 6 oz., 7 oz., 8 oz., 10 oz. and 12 oz. per square ft.

***THERMOBLOK** colors for minimum heat transmission specifically recommended for Patio Roofs and Awnings. For evaluation of all colors listed above, refer to Heat and Light Transmission Values Chart on Page 2.

SPECIAL TYPES AND CONFIGURATIONS available in mill run only, with minimum order requirements.

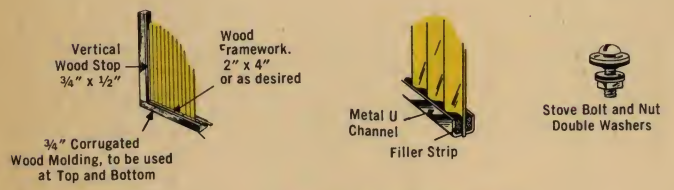
For sizes, colors, other configurations and information not shown, consult the FILON office nearest you, or FILON'S Architectural Service Department, 333 N. Van Ness Avenue, Hawthorne, California.

Letter "S" following Type Number means Standard Mill Run quality

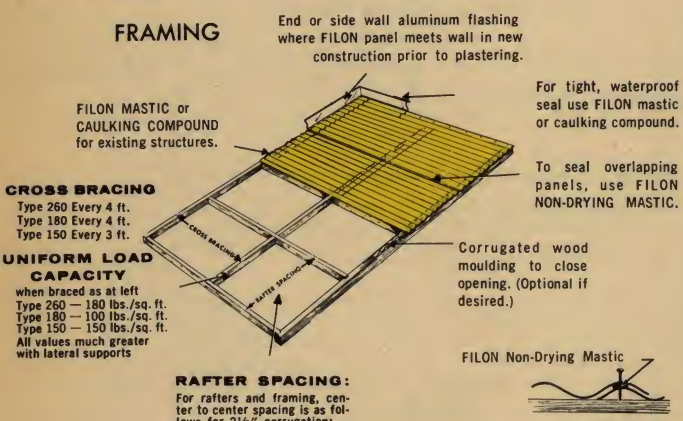
FILON® CONSTRUCTION DETAILS

LAPPING AND SEALING JOINTS





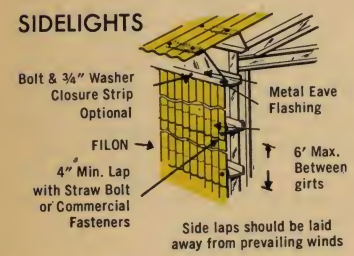
FRAMING



RAFTER SPACING:
For rafters and framing, center to center spacing is as follows for 2½" corrugation:
26" panel—24" cc —(1 lap)
34" panel—32" cc —(1 lap)
40" panel—37⅜" cc —(1 lap)

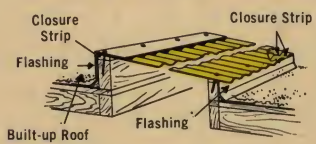
When lapping corrugated sheets, nails are driven in crown of corrugation. Use FILON aluminum weatherproof nails with neoprene or fiberglass washers. Drive nail through center of non-drying mastic. Pre-drilling of holes is recommended. Minimum nail spacing every 12"; in high wind areas every 8".

SIDELIGHTS



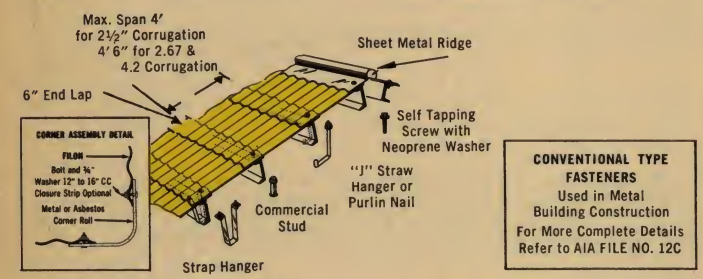
Side laps should be laid away from prevailing winds

SKYLIGHTS



Fasteners spaced every 3rd corrugation. Fasten through crown of corrugation.

ROOFS AND SKYLIGHTS



CONVENTIONAL TYPE FASTENERS
Used in Metal Building Construction
For More Complete Details Refer to AIA FILE NO. 12C

(For additional construction details contact FILON office nearest you.)

HOW TO SPECIFY FILON

1. MATERIAL—All panels of fiberglass reinforced plastic shown on plans must be labeled and shall be manufactured to the standards established for FILON Type_____Premium Quality which are that:

A. Average weight shall be_____oz./sq. ft. (with_____oz./sq. ft. of fiberglass reinforcement).

B. Thickness shall be_____.

C. Each panel shall have a hardness rating Barcol 55 to 60.

D. Each panel shall support_____lbs./sq. ft. on an unsupported 4 ft. span (or) as shown on drawings (or) in specifications.

E. Surface shall be smooth on both sides.

F. Each panel shall be reinforced with fiberglass and parallel nylon strands.

G. Panels shall have uniform thickness and color distribution.

H. Panels shall have uniform pitch and depth.

I. Panels shall be free of cellophane material.

J. Panels shall maintain the high standards of the Society of the Plastics Industry.

2. COLOR, CONFIGURATION AND PHYSICAL MEASUREMENTS

A. Color shall be _____, with an approximate light transmission of _____% (see heat and light transmission chart for values and test method).

B. Configuration(s) shall be_____ (1¼" x ¼", 2½" x 9/16", 2.67" x ⅞", 3" x ¾", 3" x 9/16", 4.2" x 1 1/16" corrugated, 4" x ¾" shiplap, 5V Crimp, 5.25V-Beam, 8" x 1" Rib, flat, etc.) And where specified shall nest with standard corrugated_____ (fill in type and size of metal or asbestos).

C. Width of panels shall be_____(or) the same as corrugated_____ (fill in size or type of metal or asbestos) to be used, and length of panels shall be_____(or) as shown on drawings or as in specifications.

3. LOADING—Purlin or girt spacings shall conform with the recommendations for FILON as shown in the A.I.A. File No. 26-A-9.

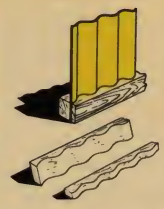
4. FASTENING—Where nested with sheet metal or asbestos-cement, the fasteners shall conform with the recommendation of the manufacturer of the sheet metal or asbestos material (with the exception that fasteners shall be fitted with FILON washers) and shall be spaced in accordance with FILON recommendations.

5. CEMENTING LAPS—For weatherproofing, side and end laps shall be cemented with FILON Clear Liquid Adhesive where required on drawings or in specifications. Use of FILON non-drying sealing cord optional. (Application instructions for the FILON Clear Liquid Adhesive and sealing cord will be found on the containers and should be followed to assure a good seal.)

6. APPLICATION—On corrugated roofs and walls, end and side laps shall conform with the recommendations of the manufacturer of the metal or asbestos-cement sheets. Laps in all cases to be away from prevailing winds.

7. CLOSURES—Horizontal or vertical closure strips (wood, rubber or aluminum as specified) shall match the FILON corrugations.

FILON ACCESSORIES



CORRUGATED WOOD STOPS, 1⅝" or ¾", for 2½" corrugation and shiplap. Wood molding bandsawed to fit corrugation.



RUBBER CORRUGATED STOPS for sealing across corrugations at ends of panels. Provide greater shock absorption where panels butt against metal structure.



WOOD AND RUBBER VERTICAL STRIPS for 2½' standard corrugations. For sealing at side lap of panel, or for underneath lap joints. (Will cover a standard 2 x 4.)

ALUMINUM FLASHING



END WALL FLASHING 28" Length, 10" Girth, 2½" corrugation. For use when end of FILON panel meets wall of another structure.



SIDE WALL FLASHING 5'6" Length, 10" Girth, 2½" corrugation. For use when side of FILON panel joins wall of a structure.



CORRUGATED RIDGE ROLL 28" Length, 12" Girth. 2" roll to match 2½" corrugation.

FILON ALUMINUM WEATHERPROOF NAILS with neoprene washers attached, 1¾" x 10 gauge. When lapping corrugated sheets, nails are driven in the crown of the corrugation to avoid seepage of water through nail holes.

FILON WASHERS—Laminated metal and neoprene, or laminated fiberglass and neoprene.

FILON CLEAR ADHESIVE for sealing side laps and end laps; also for bonding panels to other materials. Available in pint or quart containers.

FILON NON-DRYING MASTIC for waterproofing, sealing overlapping joints and caulking wherever necessary. Available in 20 ft. and 80 ft. rolls.

FILON PLASTIC REFINISHER Quart and gallon cans, in all FILON COLORS.

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WORLD'S LARGEST MANUFACTURER OF BUILDING AND DECORATIVE PLASTIC PANELS

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A. I. A. FILE NO. 26-A-9

the first to last . . .

structoglas® "A"

glass-fiber reinforced acrylic-modified polyester

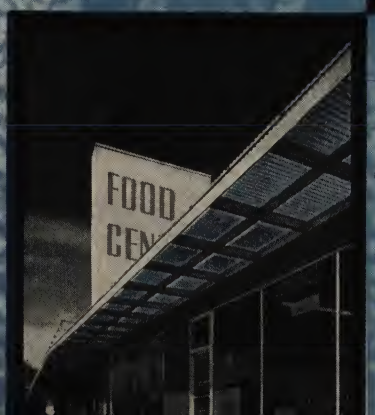


Press Molded

building panels
flat panes



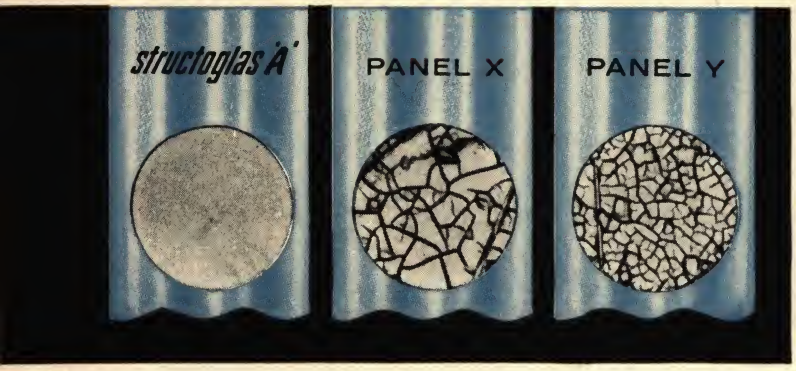




structoglas® inc.

subsidiary of international molded plastics, inc.
cleveland 9, ohio

structoglas® "A" has superior weather resistance proven by two-year Florida exposure tests



Photomicrographs of glass fiber panels after 24 months' exposure

Virtually no change after two years' exposure . . . that's the outstanding record of acrylic-modified *STRUCTOGLAS "A"* plastic panels. The revealing story illustrated by the magnified (60 times) photographs compares the effects of weather upon durable *STRUCTOGLAS "A"* and *look-alike* competitive products. Deterioration of conventional light-stabilized resins in panels "X" and "Y" resulted in minute cracks and crazes hastening erosion and bared fibers.

the first to last . . .

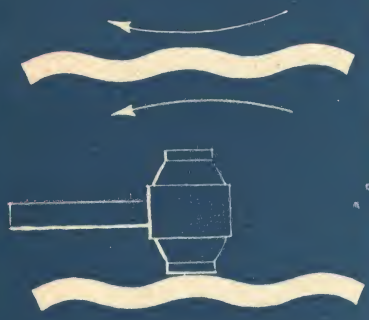
While the *STRUCTOGLAS "A"* panels proved to have 87% gloss retention after 2 years' exposure, panels X and Y retained only 1.5% and 4.3% respectively. In addition, *STRUCTOGLAS "A"* proved to have 2½ to 3 times better resistance to discoloration than panels X and Y.

By every standard of value . . . *STRUCTOGLAS "A"* is the finest translucent plastic paneling available. It has no equal in beauty, precision, durability, economy . . . and offers unprecedented physical, functional and decorative advantages.

Premium quality at standard prices is another *STRUCTOGLAS "A"* benefit. Competitively priced, this top quality material gives more actual value per dollar and is the best long-range investment.

The spectacular new *STRUCTOGLAS "A"* acrylic-modified resin permits the dramatically superior *weather resistance, color stability* and *product strength.* The excellent *heat blocking* characteristic of *STRUCTOGLAS* has been accomplished with filtering additives. And, the original jewel-toned *"pebble-grain"* surface treatment, providing protective resinous beads over the panels' surfaces, offers an extra measure of resistance to erosion.

MECHANICAL PROPERTIES



tensile strength	
Ultimate (psi) per ASTM D638-52T	11,406
Elastic Modulus	1.1×10^6
flexural strength	
Ultimate (psi) per ASTM D790-49T	28,105
Elastic Modulus	1.4×10^6
compressive strength	
Ultimate (psi) per ASTM D695-49T	27,750
hardness	
Barcol scale	55-65

CHEMICAL RESISTANCE

chemical immersion—weight change



reagent		% weight increase 10 days immersion
Sulfuric acid	(30%)	0.2
Sodium hydroxide	(10%)	0.2
Ethyl alcohol	(95%)	0.7
Carbon tetrachloride		0.0
Sodium chloride	(10%)	0.3
Water		0.4
Acetic acid	(5%)	0.4
Sodium carbonate	(2.0%)	0.3

note: Disintegrated—Acetone, Ethyl acetate and Ethylene dichloride.

PHYSICAL PROPERTIES



specific gravity

1.409 at 23° C. Test in accordance with ASTM D570-50.

water absorption

0.20% in 24 hours at 23° C. In addition, there is no warping, cracking or visible change. Test in accordance with ASTM D570-54T.

thermal properties

material	coefficient of linear expansion in./in./°F.	specific heat cal/gram/°C.	K-factor*	U-factor†
aluminum	12 to 13 x 10^{-6}	0.21 to 0.22	1200 to 1500	1.5
steel	6 to 7 x 10^{-6}	0.10 to 0.12	275 to 325	1.5
glass	4 to 5 x 10^{-6}	0.19 to 0.20	5 to 6	1.13
structoglas "A"	18.2 x 10^{-6}	0.31 to 0.33	1.0 to 1.5	1.09

*Thermal conductivity @ 150°F. BTU/ft.²/hr./°F/in. of thickness.
†Overall heat transmission coefficient BTU/hr./ft.²/°F.

COLORS AND FINISHES



percentages of visible light and energy transmission

STRUCTOGLAS "A" color	% light transmission	% infra-red transmission	color number
Seashell White	30.0	8.2	210
Crystal Clear	90.0	51.0	211
Softlite Green	69.0	43.0	230
Valley Green	35.0	39.0	231
Turquoise	12.0	19.0	232
Patio Green	26.0	29.0	233
Skyline Blue	69.0	41.0	240
Matador Red	3.0	12.0	250
Fiesta Yellow	37.0	8.0	260
Redwood	7.0	8.0	270

All colors 2% ultra-violet transmission

finish	code
smooth two sides	S2S
pebble grain two sides	P2S
pebble grain one side	P1S

Suggested specifications for structural grade *STRUCTOGLAS "A"*

Wherever glass-fiber reinforced building panels are called for on drawings, or schedules of parts, and/or specifications: "*STRUCTOGLAS "A"* as manufactured by International Molded Plastics, Inc., Cleveland 9, Ohio, and employing in excess of 19% acrylic modified Paraplex or equal resin shall be used. Panels shall be structural grade reinforced with two ounces of glass fibers per square foot, weigh an average of eight ounces per square foot. The tensile properties shall be 11,406 PSI average when tested in accordance with ASTM test method D638-52T and shall have flexural properties of 28,105 PSI average when tested in accordance with ASTM method D790-49T. Transverse load strength for panels of nominal 2½ inch corrugation shall average approximately 400 pounds per foot of width. Panels shall comply with all other requirements of the Commercial Standard CS 214-57 for General Purpose Type I Materials. Color shall be (number and name) having visible light transmission of _____% as measured by the SPI Transmissometer method. Panel thickness shall be .062", plus or minus .010".

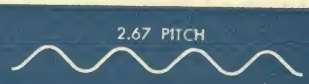
STRUCTOGLAS "SE" fire-retardant panel

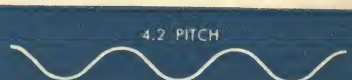
A fiberglass reinforced paneling that is self-extinguishing . . . "SE" features a Flame Spread Rating of 60-70, and a Fuel Contribution of 10. *STRUCTOGLAS "SE"* has been developed to meet institutional, commercial and industrial building codes that specify a Flame Spread Rating of below 75 for building materials in applications where fire safety is of the utmost importance.

Made from special resins and by the exclusive *STRUCTOGLAS* press-molding process, "SE" panels feature the same excellent dimensional accuracy and weather-resistant "Pebble Grain" surface as all other *STRUCTOGLAS* products. "SE" flat panes and corrugated panels are available in a special green color. Each panel carries Underwriters' Laboratories and Factory Mutual labels and complies with Commercial Standard CS 214-57 for Fire-Retardant, Type II Materials. *STRUCTOGLAS "SE"* is listed in the Approved Equipment Manual of the Factory Mutual Engineering Division.







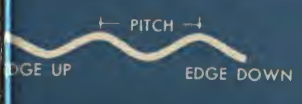


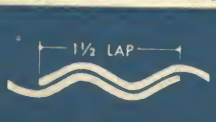
TECHNICAL DATA

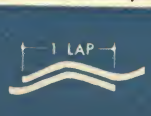
panel	thickness	standard lengths*	standard width	coverage width	finish† at edge	lappage (no. corr.)	span for 100 lb. load	corrugation: actual pitch	corrugation: depth	corrugation: number	finish code	color number	weight oz./sq. ft.	glass fiber content
2½"	1/16"	8' 10' 12'	26"	24"	B	1	48"	2.66"	½"	10	P2S	all colors	8	2 oz.
			27½"	24"	A	1½				10½				
			33"	29⅜"	A	1½				12½				
			34"	32"	B	1				13	S2S	211, 230, 240††		
			40"	37⅛"	B	1				15				
			50"	48"	B	1				19				
			51½"	48"	A	1½				19½				
1¼"			26"	24"	A	2	32"	1.25"	¼"	20½	same as 2½"			
			36"	33½"	B	1½				29				
4.2	1/16" 3/32"		42"	37.8"	B	1	54"	4.2"	1 1/16"	10	P1S	211, 230, 240††	8	2 oz.
2.67	1/16"		35"	32"	A	1½	54"	2.67"	⅞"	13½	P2S	211, 230, 240	12	3 oz.
2" step down	1/16"		39¾" 47¾" 53¾"	37¾" 45¾" 51¾"		1	48"	2"	7/16"	20 24 27	P2S	710, 731, 733 741, 750, 751 752, 760, 770, 771	8	2 oz.
flat	1/16"	8' 10' 12' and all window lite sizes	16" 24" 32" 42" 48"				to 320 sq. in.				P2S S2S	210, 211, 230 231, 232, 233 240, 250, 260 and 270	8	2 oz.
flat	.080						to 720 sq. in.						9	2½ oz.
flat	3/32"		16" 24" 32" 40" 48"				to 1000 sq. in.						11	3 oz.

*Standard lengths cut into equal parts. Non-standard sizes can also be furnished in 6" increments. All panels, with exception of 2.67, available in maximum lengths of 13' 6" at no extra charge.

†Finish at edge: A = Edge up, one edge down; B = Both edges down.
††One minimum release of 1,200 sq. ft. of any one color for delivery at one time; any color may be obtained.









CORRUGATED PANELS installation instructions

Progressive management everywhere is specifying *STRUCTOGLAS "A"* reinforced plastic panels for both new construction and reglazing existing structures. The superior strength of *STRUCTOGLAS "A"* panels . . . up to 100% stronger than minimum industry requirements . . . makes them widely acceptable as a structural building material.

Basic installation information for corrugated panels in fixed mounted roofing units are as follows:

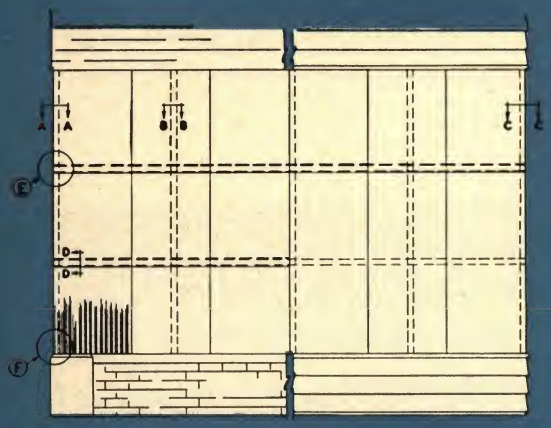
1. Provide purlin members at recommended maximum intervals required for corrugation selected:

Corrugation:	Purlin Interval:
1¼"	32"
2½"	48"
2.67 & 4.2"	54"

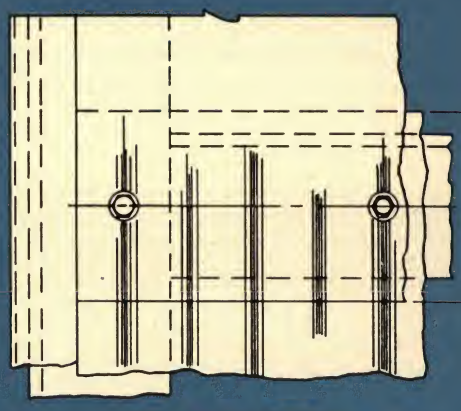
2. Remove protective cellophane sheet from *STRUCTOGLAS "A"*.
3. For best protection against prevailing winds and weather, apply panels beginning at leeward end of run and working to windward.
4. Provide one corrugation overlap at sides when employing Universal Vinyl Lap-Seal. Provide 1½ corrugations overlap when using *STRUCTOSEAL*, a clear mastic.
5. Provide 8" end-lap for roof with pitch of less than 4" in 12"; 6" end-lap for roof slope of more than 4" in 12".
6. Fasten panels through crowns at every second corrugation. Fasteners with armored neoprene washers are recommended.
7. Apply side-lap fasteners every 9" to 12".
8. For sidewall installations, lap panels one corrugation when using either Universal Vinyl Lap-Seal or clear mastic. Recommended minimum end-lap is 4". Recommended maximum girt spacing:

Corrugation:	Girt Interval:
1¼"	44"
2½"	60"
2.67 & 4.2"	66"

SIDEWALL MOUNTING

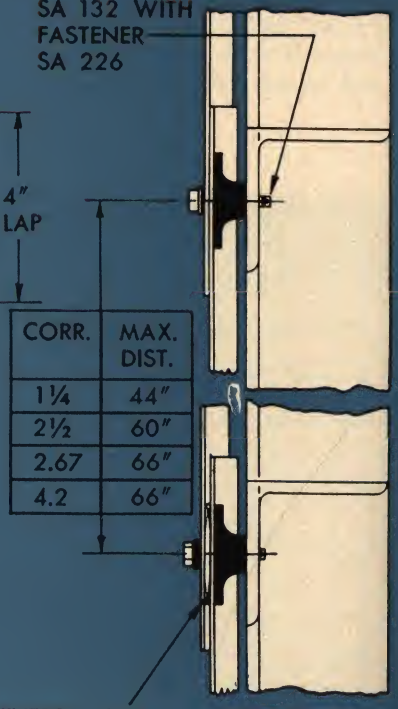


SIDE WALL ELEVATION



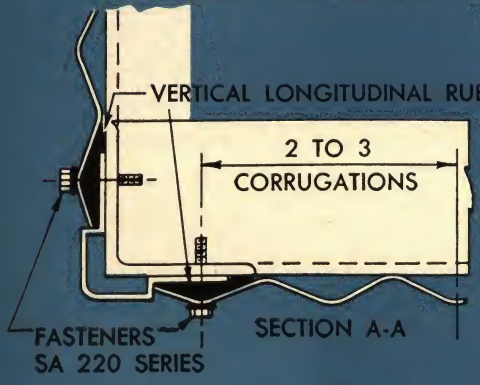
VIEW "E" ENLARGED

2½ CORR. SHOWN TYPICAL

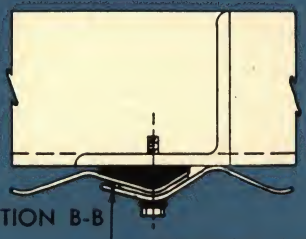


SECTION D-D

CORR.	MAX. DIST.
1¼	44"
2½	60"
2.67	66"
4.2	66"

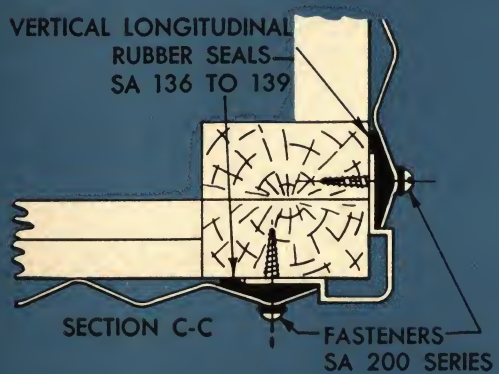


SECTION A-A

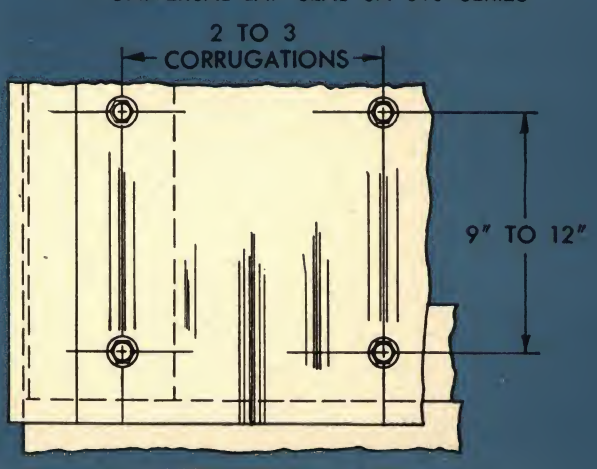


SECTION B-B

UNIVERSAL LAP SEAL SA 310 SERIES



SECTION C-C



VIEW "F" ENLARGED



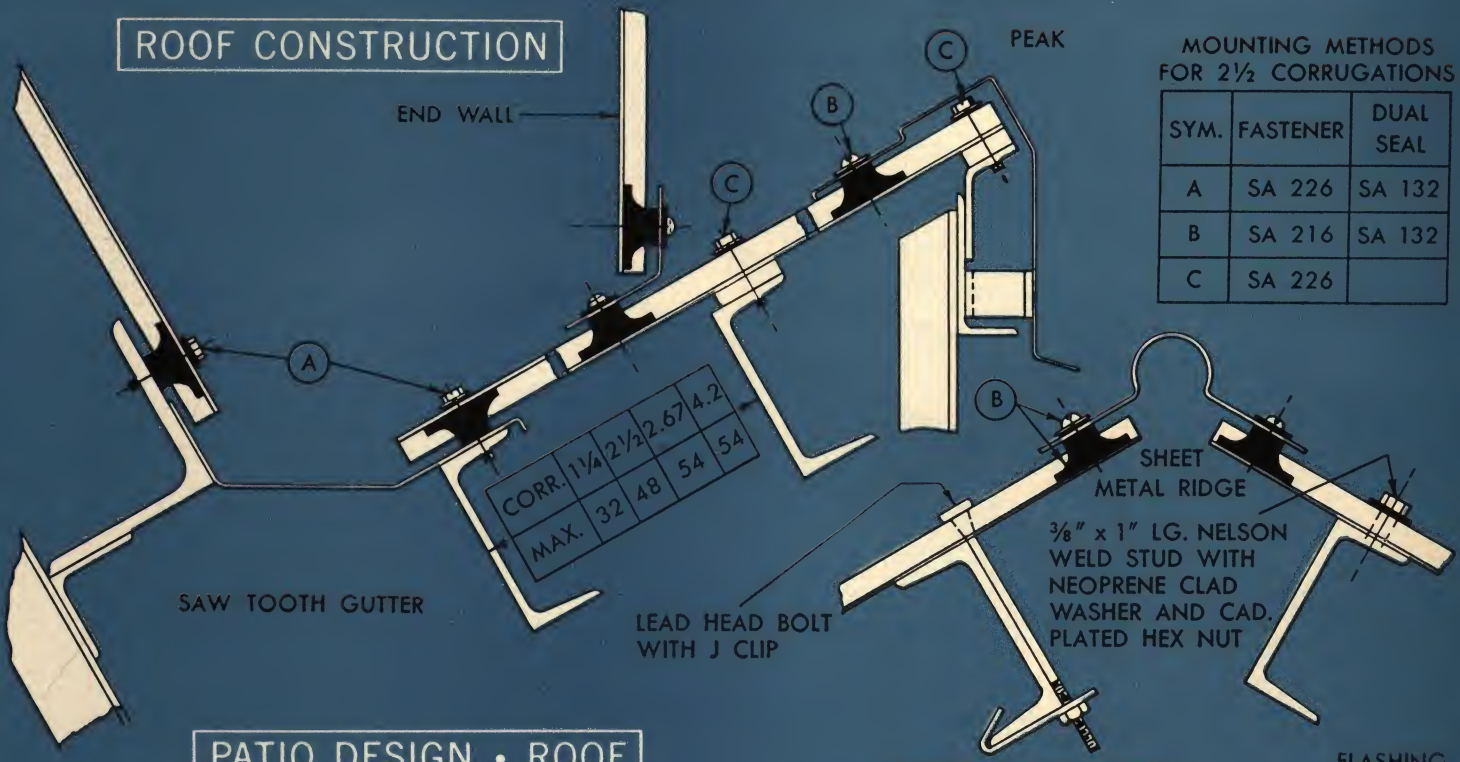
ALL SECTIONS SCALE 3"=1'0"
ALL SHEET METAL AND STEEL WORK BY OTHERS

FOR LASTING BEAUTY AND UTILITY

Beautiful, durable STRUCTOGLAS "A" suggests a host of functional and decorative uses. For every indoor and outdoor plastic building panel application, for diffused lighting, shelter, facing or area division, STRUCTOGLAS "A" stands unequalled in quality, performance and economy.

the first to last . . . **structoglas® "A"** **7d In**

ROOF CONSTRUCTION

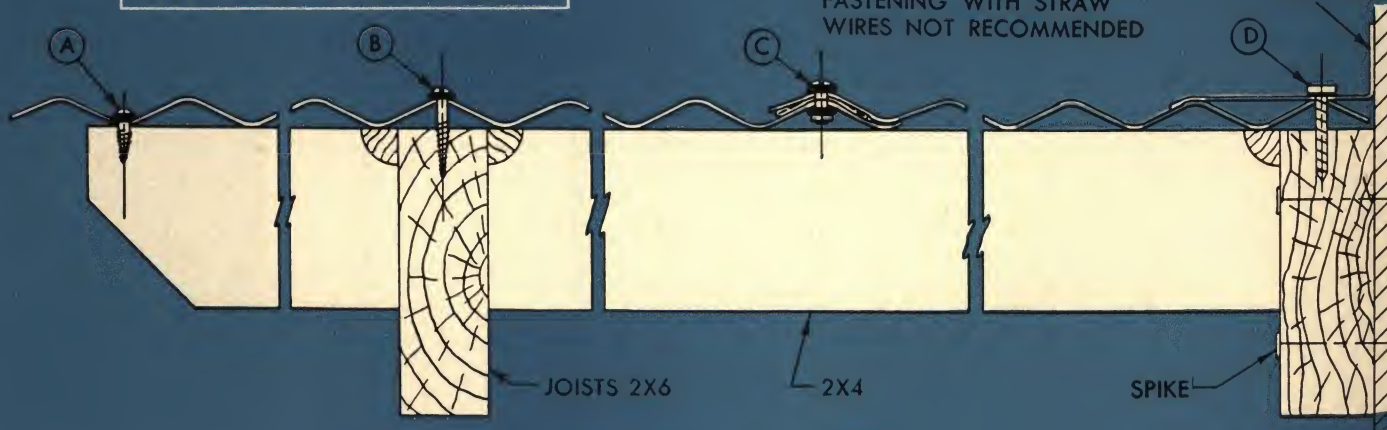


CORR.	1¼	2½	2.67	4.2
MAX.	32	48	54	54

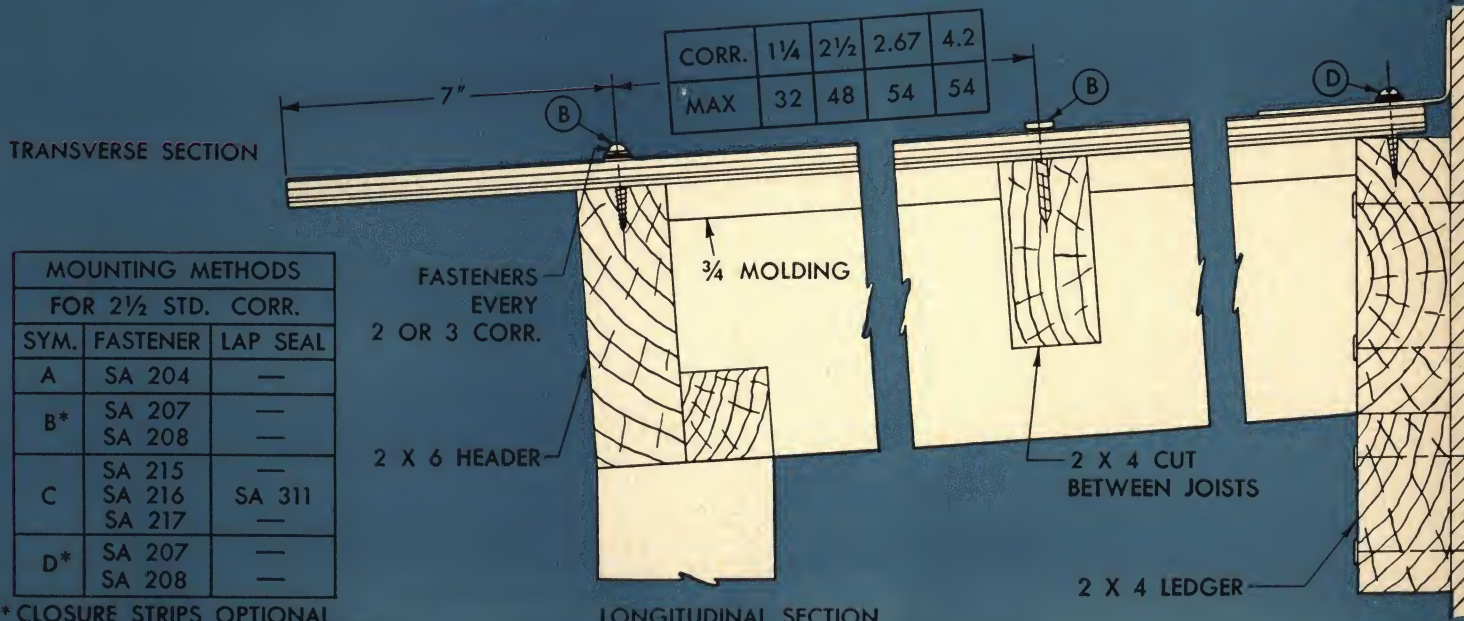
MOUNTING METHODS FOR 2½ CORRUGATIONS

SYM.	FASTENER	DUAL SEAL
A	SA 226	SA 132
B	SA 216	SA 132
C	SA 226	

PATIO DESIGN • ROOF



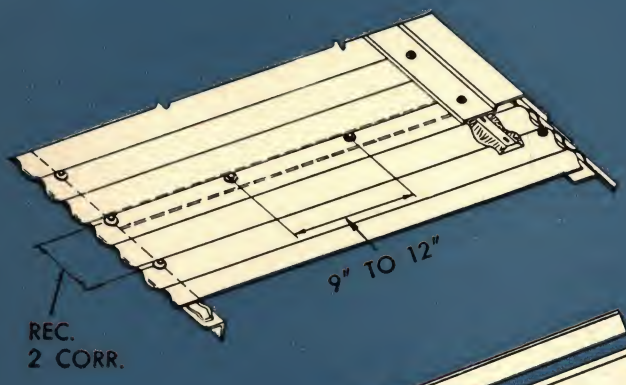
CORR.	1¼	2½	2.67	4.2
MAX	32	48	54	54

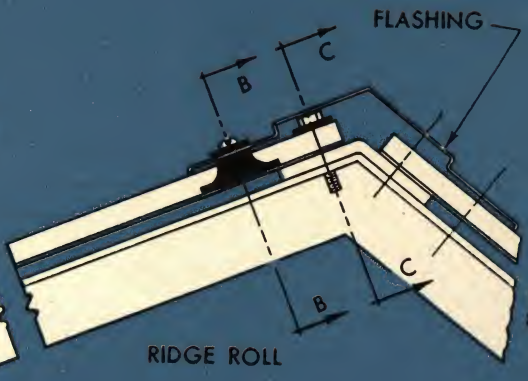


MOUNTING METHODS FOR 2½ STD. CORR.		
SYM.	FASTENER	LAP SEAL
A	SA 204	—
B*	SA 207 SA 208	— —
C	SA 215 SA 216 SA 217	— SA 311 —
D*	SA 207 SA 208	— —

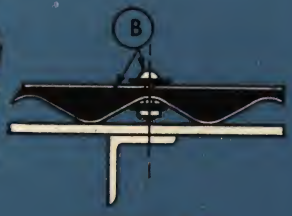
*CLOSURE STRIPS OPTIONAL

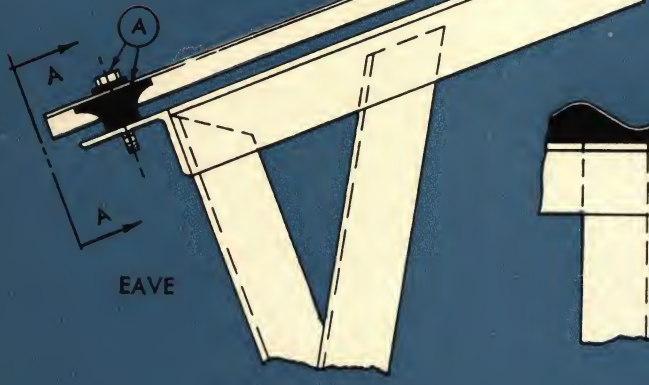
SKYLIGHT CONSTRUCTION

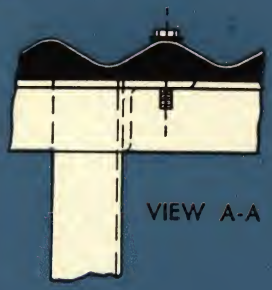








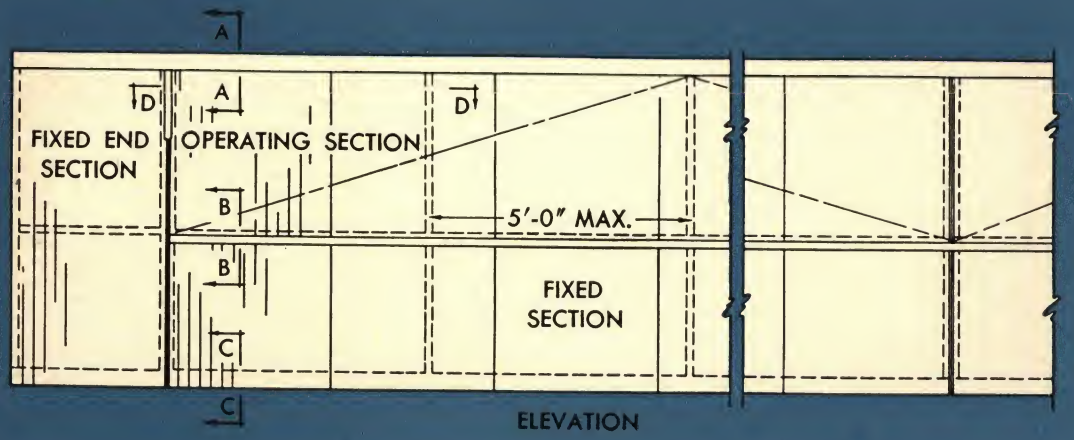


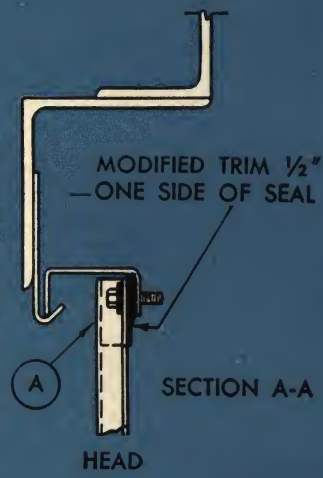


MOUNTING METHODS FOR 2½ CORRUGATIONS

SYM.	FASTENER	DUAL SEAL
A	SA 226	SA 132
B	SA 216	SA 132
C	SA 226	

CONTINUOUS WINDOWS

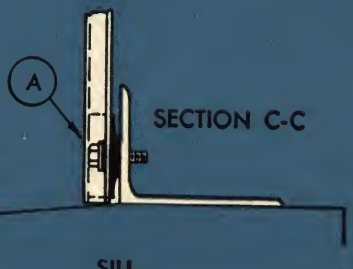


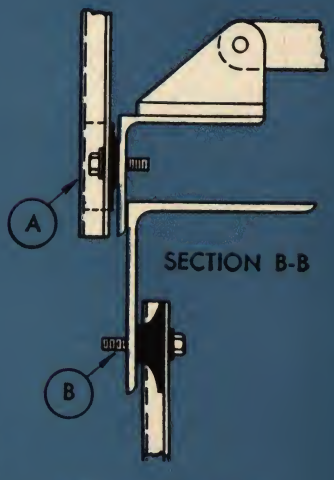




MOUNTING METHOD FOR STD. 2½ CORRUGATION

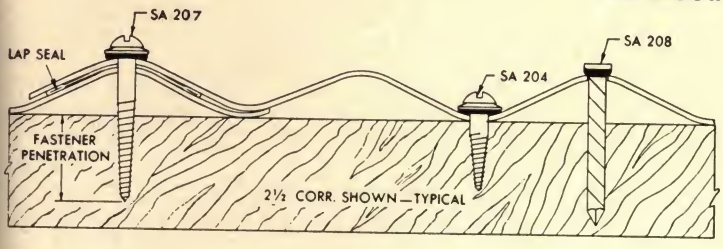
SYM	FASTENER	LAP SEAL	HORIZ. DUAL SEAL	LONGITUDINAL SEAL
A	SA 224		SA 132	
B	SA 226	SA 311		
C	SA 226			SA 106
D	SA 217	SA 311		SA 106



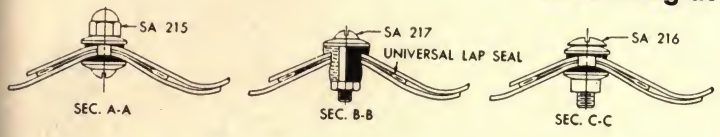


METHODS OF FASTENING STRUCTOGLAS

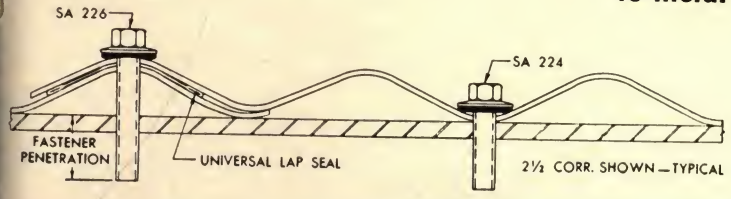
to wood



to structoglas



to metal



notes for construction

A. To avoid deflection of sheets, tighten screw until washer will not revolve, then tighten 1 more turn.
B. Avoid excess burr on drilled or punched holes to protect neoprene sealing face.
C. Drill for and fasten extreme bolts, with full support below all valleys, then drill for and fasten in-between points.

fastener	clearance drill
SA 215	3/16
SA 216	5/16
SA 217	7/16

tap drill sizes

metal thickness	steel	aluminum
1/8	#1 (.228)	#4 (.209)
3/16	15/64	#3 (.213)
7/32 to 3/8	15/64	#1 (.228)

FASTENERS

fastening structoglas to	use with CORRUGATIONS: crown 1¼	crown 2½	crown 2.6	crown 4.2	valley 1¼	valley 2½	valley 2.6	valley 4.2	catalog number	description
wood	√				√	√ sidewalls	√	√	SA 204	#10 x 1" A1. Rd. Hd. Wood Screw with ½" armored Neoprene washer.
		√							SA 207	#10 x 1¾" A1. Rd. Hd. Wood Screw with armored Neoprene washer.
	√	√				not recommended			SA 208	2" Lg. 9¼ gage A1. Roof Helix Nail with Neoprene washer.
			√	√		use SA 204 sidewalls			SA 209	#10 x 2¼" A1. Rd. Hd. Wood Screw with armored Neoprene washer.
			√	√		not recommended			SA 210	2½" Lg. 9 gage A1. Roof Helix Nail with Neoprene washer.
structoglas	√	√	√	√	√	√ sidewalls	√	√	SA 215	#10-32 x 5/8" A1. Rd. Hd. Machine Screw with (2) 5/8 armored Neoprene washers and A1. Hex. Capnut.
	√	√	√	√	√	√ sidewalls	√	√	SA 216	¼ x ¾" Lg. Stove bolt, steel, Cad. Plated with (2) armored Neoprene washers and (1) Sq. nut.
	√	√	√	√	√	√ sidewalls	√	√	SA 217	#10-32 x 7/8" Lg. A1. Rd. Hd. machine screw with (1) 5/8 washer. Grommet and Hex. nut.
metal	√				√	√ sidewalls	√	√	SA 224	#14 x 1" Lg. Hex Hd. stainless-type steel self-tapping bolt, with (1) 5/8 armored Neoprene washer.
		√				use SA 224 sidewalls			SA 226	#14 x 1½" Hex. Hd. stainless-type steel self-tapping bolt, with (1) 5/8 armored Neoprene washer.
			√	√		use SA 224 sidewalls			SA 228	#14 x 2" Hex. Hd. stainless-type steel self-tapping bolt, with (1) 5/8 armored Neoprene washer.

size corrugation	Universal Vinyl Lap catalog no.	width	length	Horizontal Rubber Dual catalog no.	width	length	Vertical Rubber Longitudinal catalog no.	width	length
1¼	SA 310	1⅛	Rolls	SA 131		37¾"	SA 107	1¼	26½"
2½	SA 311	1⅞	of	SA 132		28"	SA 106	2.66	26½"
2.67	SA 312	2¾	50 ft.	SA 133		37¾"	SA 108	2.67	26½"
4.2	SA 312	2¾	each	SA 134		37¾"	SA 109	4.2	26½"

structoglas® "A"

the first to last . . .

rubber closure strips

	item	width	length	corrugations	quantity per carton
horizontal	SA-101	1"	28"	2.66"	88
	SA-102	1"	27"	flat	150
	SA-103	1"	28"	2.67"	100
	SA-104	1½"	25.2"	4.2"	48
	SA-105	1"	24"	1.25"	160
dual seal horizontal	SA-131	*	37¾"	1.25"	100
	SA-132	*	28"	2.66"	100
	SA-133	*	37¾"	2.67"	48
	SA-134	**	37¾"	4.2"	45
longitudinal	SA-106	2.66"	26½"	2.66"	44
	SA-107	1.25"	26½"	1.25"	160
	SA-108	2.67"	26½"	2.67"	44
	SA-109	4.2"	26½"	4.2"	16

* 55-60
** 60-70
hardness (durometer tests)

wood moldings

item	type	width	length	corrugations	radius molded edge	quantity per carton
SA-120	sap gum	1 x 7/16"	72"	2½"	3/16"	40
SA-121	sap gum	7/8 x 7/16"	72"	1¼"	3/16"	40

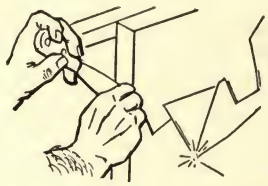
structoseal clear mastic

item	quantity	description	coverage	quantity per carton
SA-300	one quart	structoseal	40 lin. ft.	12
SA-301	one gallon	structoseal	150 lin. ft.	4

window glazing

STRUCTOGLAS "A" flat panes are available in standard glazing sizes for fast, easy installation in the following gauges: Standard 1/16" for openings up to 320 sq. in., Special .080" for openings up to 720 sq. in. and Heavy Duty 3/32" for openings up to 1000 sq. in. Panes ordered to standard glass dimensions will allow 1/8" clearance on all sides.

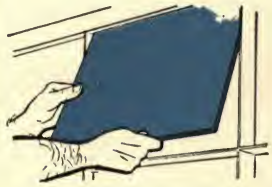
Colors offered are Softlite Green, Skyline Blue and Crystal Clear Translucent. For further information refer to Sweet's Plant Engineering File, Section 5b/In, or write direct for Bulletin SL-1.



1 Remove old putty, broken glass and old glazing points or clips. Clean sash, paint if needed.



3 Insert a glazing clip on all four sides of frame. For larger panes a good "rule of thumb" is one clip every 6".



2 Remove protective cellophane from *STRUCTOGLAS "A"*. Back putty, then insert pane in sash.



4 Apply face putty . . . a non-hardening compound is preferable.

structoglas representatives

CALIFORNIA, WASHINGTON, OREGON, WESTERN IDAHO, NEVADA, ARIZONA
A. E. Lilly Company
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Minneapolis, Minn.
Phone: Federal 9-7035

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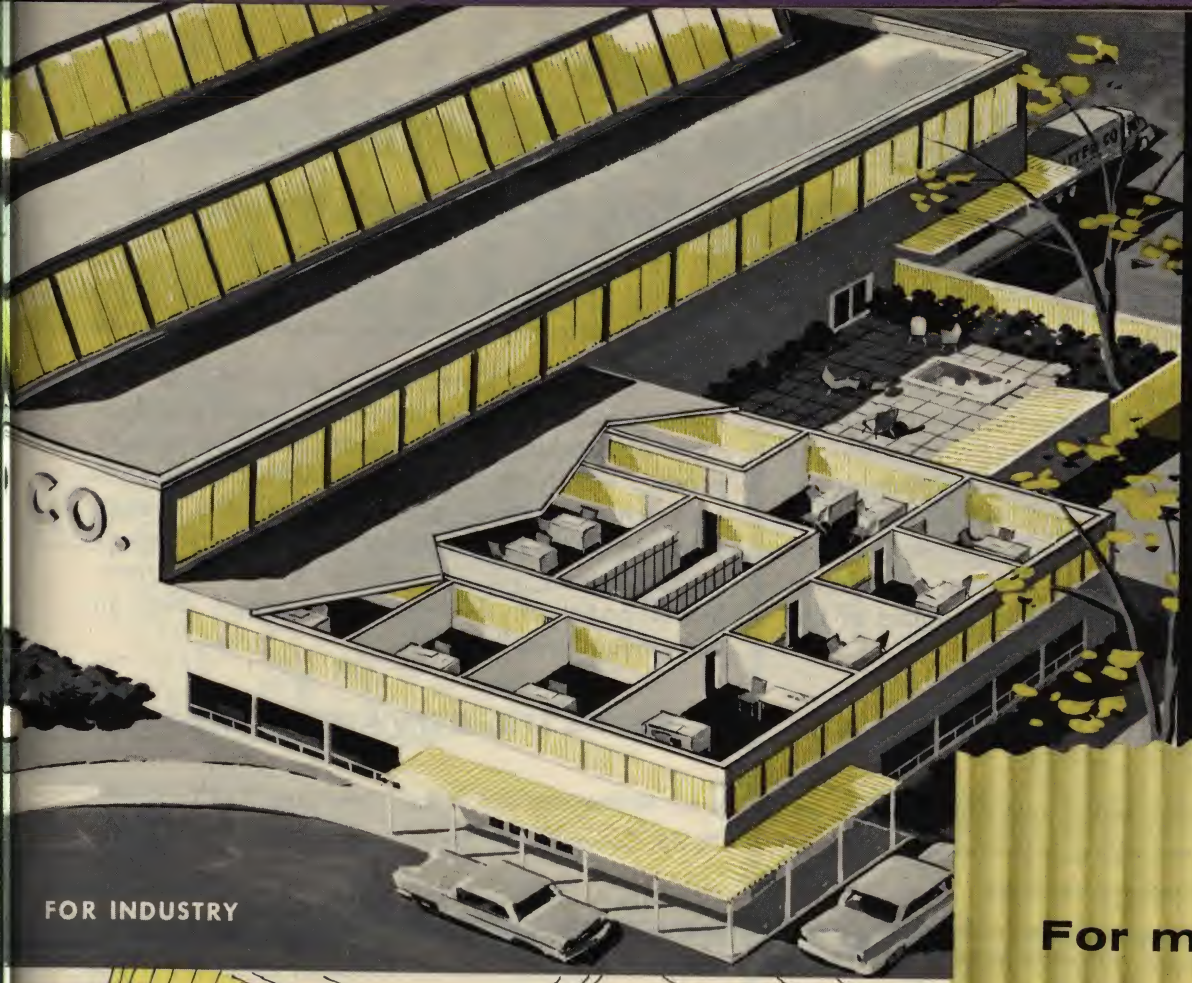
FLORIDA
Mr. Murry Maisel
P. O. Box 2096
Miami Beach, Florida
Phone: Union 6-9000

Printed in U.S.A.

Form No. SL-3 20M9

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7d
Jo



FOR INDUSTRY

For maximum diffused, low-cost daylighting...

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville Corrulux®

SHATTERPROOF FIBER GLASS PANELS



FOR THE HOME

Johns-Manville Corrulux®

SHATTERPROOF TRANSLUCENT BUILDING PANELS

Shatterproof Corrulux translucent building panels provide lower cost daylighting for industrial, commercial and residential buildings. Lightweight Corrulux panels are composed of extremely tough, weather-resistant and light-stabilized resins reinforced with millions of high strength glass fibers. Each panel is manufactured in strict accordance with quality standards and exceeds those of the Society of the Plastics Industry.

Johns-Manville Corrulux has pioneered its field and has consistently led the research and development of product improvements. Many of today's product standards are a result of this continuous research for a better product. When you specify Johns-Manville Corrulux, for new construction or modernization, you are assured of the best translucent panel on the market consistent with an economical price.

J-M CORRULUX HAS ALL THESE PLUS ADVANTAGES

COLORFUL! Distinctive built-in colors and gem-like finishes for contemporary styling, scientifically engineered with soft diffusion for reduced eye strain.

DURABLE! Shatterproof, will not rot or mildew, unaffected by most industrial fumes, resists surface erosion.

ECONOMICAL! Light weight, easy to handle and install. Requires minimum framing, minimum maintenance. No special tools required for installation.

SAFE! Shatterproof and strong, Corrulux cannot splinter, resists flying objects for personnel protection. Eliminates hazards of glass breakage.

HIGH STRENGTH & IMPACT RESISTANCE! Actual loading tests indicate that 2½", 2.67" and 4.2" corrugations will support uniform loads of 40 pounds per square foot with a 2.5 factor of safety when fastened in accordance with specifications. Corrulux is highly resistant to rocks, hailstones and typical factory vibrations. A two pound steel ball, dropped from a four-foot height on ordinary structural grade Corrulux material, creates no visible damage. (Shatterproof test in accordance with Federal Specification LP406b. Method No. 1073.2)

FIRE RESISTANCE! Corrulux has an ignition point of 850°—900° F., according to laboratory tests. Standard Corrulux, when ignited, burns slowly — the blanket of fiber glass reinforcement serves as a barrier to flame breakthrough. When building codes specify Underwriter's label or Factory Mutual approval, Corrulux Pyro-Panl should be used. UL flame-spread rating: Granitized 75-85, Smooth 70-75. Complete Test Reports available.

CHEMICAL RESISTANT! Corrulux is immune to the effects of moisture or brine . . . will not rust, scale, mildew or rot. It is not appreciably affected by immersion in mild alkalies or in contact with most industrial fumes. For installations exposed to highly concentrated corrosive fumes, direct inquiry should be made to the Corrulux distributor or to Johns-Manville.

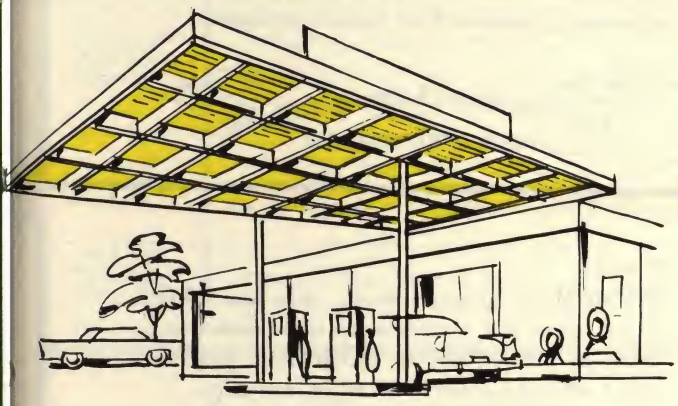
THERMAL STABILITY! The strength and shatter resistance qualities of Corrulux are not appreciably affected over a temperature range of —65° F to 212° F, however Corrulux is not recommended for continuous service in temperatures above 200° F.

LOW HEAT TRANSMISSION! By conduction; the thermal conductivity of Corrulux is approximately 2-3 BTU/hr./sq. ft./°F/ inch of thickness or approximately 40% of ¼" plate glass. (Comparative: Glass 5-6, Steel 312, Aluminum 1416.) By radiation: Approximately 60% average for Maxlite, Skylight Green and Sky Blue, 45% average for all other colors. (Comparative: ¼" window glass 82%, ¼" heat absorbing glass 45%.) U Factor: (Standard Sidewall conditions): 1.2 BTU/hr./sq. ft./°F.

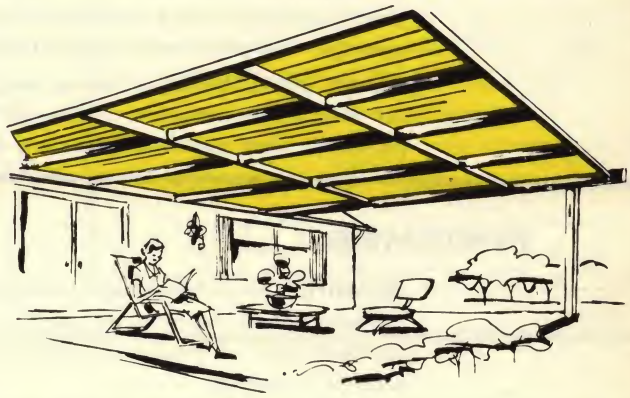
CONTROLLED LIGHT TRANSMISSION! Corrulux has visual light transmission up to 85% of air (100%) depending on color (Fed. Spec. LP-406b), Method 3021, or SPI Transmissometer Method). Controlled diffusion for glare reduction . . . eliminates "spotlighting", deflects light at all angles for evenly-lighted, shadowless areas.

Johns-Manville Corrulux®

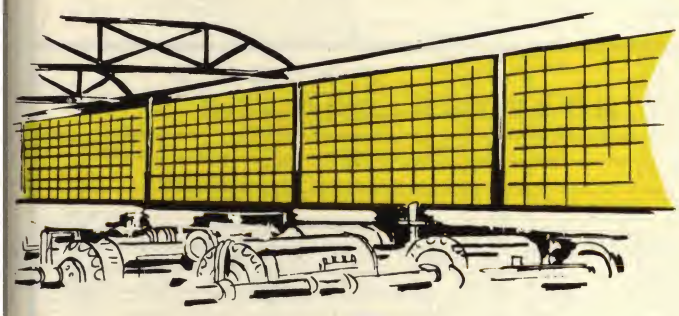
OFFERS UNLIMITED DESIGN POSSIBILITIES



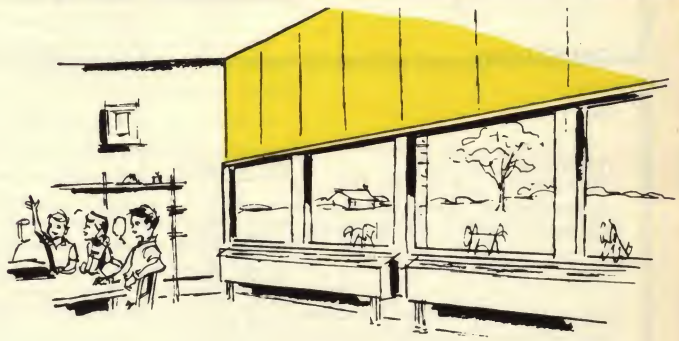
COMMERCIAL Store Fronts • Signs • Luminous ceilings Office partitions • Curtain walls • Marquise • Displays and exhibits • Decorative paneling • Storm shutters



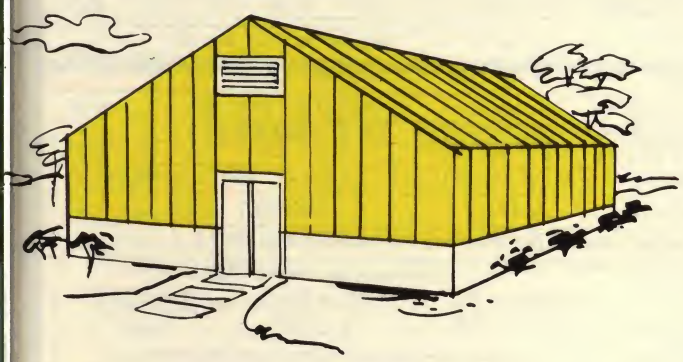
RESIDENTIAL Patios • Carports • Awnings • Room dividers • Movable screens • Windbreaks • Fences • Shower doors • Tub enclosures • Decorative paneling



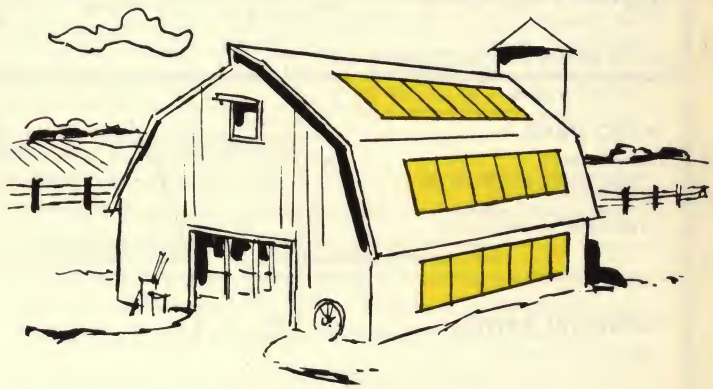
INDUSTRIAL Skylights • Sidelights • Glazing • Partitions Lighting fixtures • Protective shields • Canopies • Truck bodies and trailers • Ceilings



INSTITUTIONAL Glazing • Partitions • Skylights • Sidelights • Borrow lights • Luminous ceilings • Protected play areas • Sun shades • Canopies



HORTICULTURAL Greenhouses • Cold frames • Plant screens • Showrooms • Hothouses



AGRICULTURAL Dairy barns • Implement sheds • Loafing barns • Poultry houses • Milk sheds • Workshops

Johns-Manville Corrulux

GRADES OF MATERIAL

STRUCTURAL—The most widely specified weight in the translucent panel field. Recommended for general daylighting use and in construction where building codes are applicable.

FUNCTIONAL—An economy weight material which has gained wide acceptance for patios, awnings, and other home applications.

HEAVY STRUCTURAL—A heavy weight material used where abnormal loading is to be expected or when excessive spans are desirable.

PYRO PANL—Functional and structural weight panels manufactured with special resins which will extinguish themselves when the source of flame is removed. For use in installations requiring Underwriters' Label or Factory Mutual approval. Complete Test Reports available.

FM Underwriters' Laboratories, Inc.® FM
INSPECTED PLASTIC

FINISHES

GRANITIZED—A beautifully textured surface composed of minute jewel-like facets of weather-resistant resin. A premium finish for greatest erosion resistance.

SMOOTH—A glossy smooth, satin-like finish which resists dirt accumulation and creates unusual decorative effects. Made by a process which affords increased weather resistance.

SELECTION DATA

Grades of Material	Corrugation	Color*	Finishes	Lengths**	Widths***	Maximum Roof Span****
STRUCTURAL (Type I Panel) †THICKNESS — .06" (1/16") †TOTAL WEIGHT — 8 OZ./ SQ. FT. †GLASS CONTENT — 2 OZ./SQ. FT. †SHIPPING WEIGHT — 0.6 LBS./SQ. FT.	1¼" x ¼"	1, 2, 4, 5, 6, 7	GRANITIZED	8', 10', 12', ONLY	26", 34"	3' 0"
		1, 2	SMOOTH	8', 10', 12', ONLY	26", 34"	
	2½" x ½"	1, 2, 3	SMOOTH	4' TO 12'	26", 27½", 33½", 40"	4' 0"
		1, 2	GRANITIZED	4' TO 12'	26", 27½", 33½", 40"	
		3,4,5,6,7,8,9 10,11,12	GRANITIZED	8', 10', 12', ONLY	26", 27½", 33½", 40"	
		13, 14, 15, 16	GRANITIZED	8', 10', 12', ONLY	40"	
	FLAT	1, 2	GRANITIZED	2' TO 12'	24", 30", 32", 36", 44", 48"	SEE "NOTES"
		3, 4, 5, 6, 7, 8, 9, 11	GRANITIZED	4', 8', 10', 12' ONLY	44"	
		1, 2	SMOOTH	2' TO 12'	30", 36", 44"	
	STEPDOWN 6½	5, 6, 7, 9, 11	GRANITIZED	8', 10', 12', ONLY	39½"	3' 0"
	4.2"	1, 2	GRANITIZED	4' TO 12'	42"	4' 6"
		2	SMOOTH	4' TO 12'	42"	
	2.67" x 7/8"	1, 2	GRANITIZED & SMOOTH	4' TO 12'	35"	4' 6"
	3" x 3/4"	2	GRANITIZED & SMOOTH	4' TO 12'	30¾"	4' 6"
	V-BEAM	2	GRANITIZED	8', 10', 12', ONLY	29"	5' 0"
	2.70"	2	GRANITIZED	4' TO 12'	33½"	4' 0"
	5-V CRIMP	2	SMOOTH	8', 10', 12', ONLY	26"	3' 0"
	STRAN	1, 2	GRANITIZED	4' TO 12'	38"	
	MANSARD	2	GRANITIZED	4' TO 12'	32⅜"	3' 6"
FUNCTIONAL (Type I Panel) THICKNESS — .045" (3/64") TOTAL WEIGHT — 6 OZ./SQ. FT. GLASS CONTENT — 1½ OZ./SQ. FT. SHIPPING WEIGHT — .45 LBS./SQ. FT.	1¼" x ¼"	1, 2	SMOOTH	8', 10', 12', ONLY	26"	2' 0"
	2½" x ½"	1, 2, 6, 9, 11, 12	SMOOTH	8', 10', 12', ONLY	26", 40"	3' 0"
HEAVY STRUCTURAL (Type I Panel) THICKNESS — .09" (3/32") TOTAL WEIGHT — 12 OZ./SQ. FT. GLASS CONTENT — 3 OZ./SQ. FT. SHIPPING WEIGHT — .85 LBS./SQ. FT.	2½" x ½"	1, 2	GRANITIZED & SMOOTH	5' 6" TO 12'	26", 27½", 33½", 40"	5' 0"
	4.2"	1, 2	GRANITIZED & SMOOTH	5' 6" TO 12'	42"	6' 0"
	FLAT	1, 2	GRANITIZED	2' TO 12'	24", 30", 32", 36", 44", 48"	SEE "NOTES"
		1, 2	SMOOTH	2' TO 12'	30", 36", 44"	
PYRO PANL (Type II Panel) Minimum Order — 1000 Sq. Ft. STRUCTURAL	2½" x ½"	1, 2	GRANITIZED & SMOOTH	4' TO 12'	26", 27½", 33½", 40"	4' 0"
	2.67" x 7/8"	1, 2	GRANITIZED & SMOOTH	5' 6" TO 12'	33¾", 35"	4' 6"
	4.2"	1, 2	GRANITIZED & SMOOTH	5' 6" TO 12'	42"	4' 6"
	FLAT	1, 2	GRANITIZED	8', 10', 12', ONLY	30", 36", 44"	SEE "NOTES"
PYRO PANL — FUNCTIONAL	2½" x ½"	1, 2	GRANITIZED	4' TO 12'	26", 33½"	3' 0"

FOR EXPORT CORRUGATIONS OR SPECIAL CORRUGATIONS, COLORS, WIDTHS, GRADES ETC. CONTACT THE PRODUCT MANAGER.

WINDOW PANES STRUCTURAL GRADE	FLAT	1, 2, 3	GRANITIZED AND SMOOTH	STANDARD INDUSTRIAL SIZES 14⅝" x 17⅝" 14⅝" x 18⅝" 14⅝" x 19⅝" 14⅝" x 20⅝" 14" x 20" 15⅝" x 19⅝" 15⅝" x 21⅝" (For Other Sizes, Colors or Grades See Above)		

Notes: Recommended maximum spans for flat glazing — Structural — 20" x 24" Heavy Structural — 24" x 36"

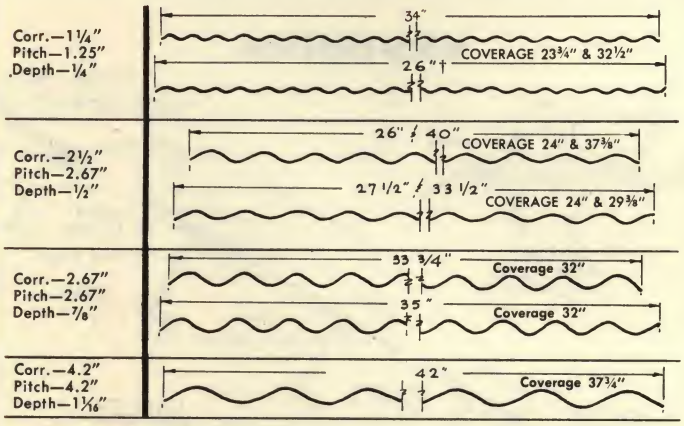
***Inquire for special wide widths

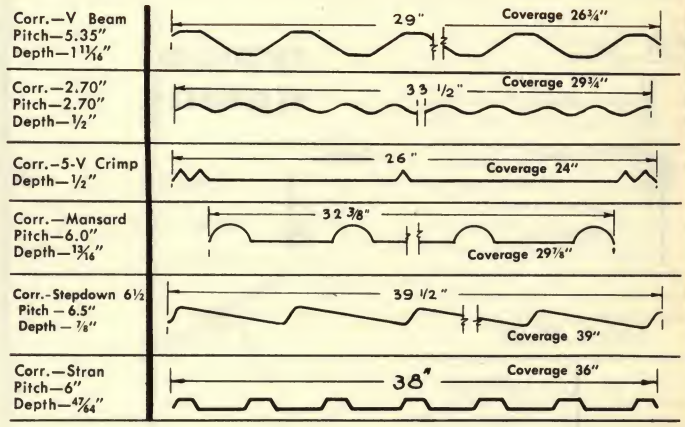
**CORRUGATED MATERIAL MANUFACTURED IN INCREMENTS OF 6" FLAT MATERIAL IN 12" INCREMENTS UNLESS SPECIFIED OTHERWISE. SPECIAL LENGTHS AVAILABLE ON ORDER.

****RECOMMENDED FOR UNIFORM LOADING OF 40 P.S.F. WITH A 2.5 FACTOR OF SAFETY (100 LBS./SQ. FT.) WHEN FASTENED IN ACCORDANCE WITH SPECIFICATIONS. FOR PROPORTIONATELY LIGHTER LOAD REQUIREMENTS, SPANS MAY BE INCREASED UP TO 20%.

Specifications and Product Data

STANDARD CORRUGATIONS





†Nominal, Actual Width 25¾", + or — ¼".

COLOR CHART

Code	Color	Approx. Light Transmissions[1]		Approx. Radiant Heat Transmissions (Struct.)	
		Structural	Functional	Ultra-Violet[2]	Infra-Red[3]
1	Maxlite	81%	80%	13.8%	47.5%
2	Skylight Green	65%	70%	13.5%	34.4%
3	Sky Blue	58%	—	5.9%	30.9%
4	Sunlight Yellow	80%	—	22.6%	30.9%
5	Light Ivory	66%	—	1.3%	21.2%
6	Coral	45%	48%	3.9%	25.4%
7	Forest Green	56%	—	3.9%	25.9%
8	Awning Red	9%	—	1.1%	38.3%
9	Awning White	45%	64%	1.2%	11.1%
10	Awning Blue	25%	—	3.4%	29.9%
11	Awning Yellow	50%	60%	0.6%	12.4%
12	Surf Green	35%	—	1.3%	20.8%
13	Hunter Green	10%	—	1.8%	18.6%
14	Chartreuse	40%	—	0.7%	11.3%
15	Brown	10%	—	1.2%	35.1%
16	Black	—	—	—	—

SQUARE FOOTAGE CHART

Width \ Length	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"	126"	132"	138"	143"	144"
26"	6.50	7.58	8.67	9.75	10.83	11.92	13.00	14.08	15.17	16.25	17.33	18.42	19.50	20.58	21.67	22.75	23.83	24.92	25.82	26.00
27½"	6.88	8.02	9.17	10.31	11.46	12.60	13.75	14.90	16.04	17.19	18.33	19.48	20.63	21.77	22.92	24.06	25.21	26.35	27.31	27.50
30"	7.50	8.75	10.00	11.25	12.50	13.75	15.00	16.25	17.50	18.75	20.00	21.25	22.50	23.75	25.00	26.25	27.50	28.75	29.79	30.00
30¾"	7.69	8.97	10.25	11.53	12.81	14.07	15.38	16.66	17.94	19.22	20.50	21.79	23.06	24.35	25.63	26.91	28.19	29.47	30.53	30.75
33½"	8.38	9.77	11.17	12.56	13.96	15.35	16.75	18.15	19.54	20.94	22.33	23.73	25.13	26.52	27.92	29.31	30.71	32.10	33.27	33.50
33¾"	8.44	9.85	11.25	12.66	14.06	15.47	16.88	18.29	19.69	21.10	22.50	23.91	25.31	26.72	28.13	29.54	30.94	32.35	33.51	33.75
34"	8.50	9.92	11.33	12.75	14.17	15.58	17.00	18.42	19.83	21.25	22.67	24.08	25.50	26.92	28.33	29.75	31.17	32.58	33.76	34.00
35"	8.75	10.21	11.67	13.13	14.58	16.04	17.50	18.96	20.42	21.88	23.33	24.79	26.25	27.71	29.17	30.63	32.08	33.55	34.76	35.00
36"	9.00	10.50	12.00	13.50	15.00	16.50	18.00	19.50	21.00	22.50	24.00	25.50	27.00	28.50	30.00	31.50	33.00	34.50	35.75	36.00
39½"	9.88	11.52	13.17	14.81	16.46	18.10	19.75	21.40	23.04	24.69	26.33	27.98	29.63	31.27	32.92	34.56	36.21	37.85	39.23	39.50
40"	10.00	11.67	13.33	15.00	16.67	18.33	20.00	21.67	23.33	25.00	26.67	28.33	30.00	31.67	33.33	35.00	36.67	38.33	39.72	40.00
42"	10.50	12.25	14.00	15.75	17.50	19.25	21.00	22.75	24.50	26.25	28.00	29.75	31.50	33.25	35.00	36.75	38.50	40.25	41.71	42.00
44"	11.00	12.83	14.67	16.50	18.33	20.17	22.00	23.83	25.67	27.50	29.33	31.17	33.00	34.83	36.67	38.50	40.33	42.17	43.69	44.00

All Sizes Shown On This Chart Are Not Necessarily Standard—For Calculation Purposes Only.

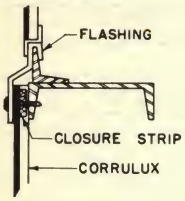
HOW TO SPECIFY (For specific data, see "Selection Data")

1. Panel shall be _____ grade.
2. Corrugations shall be _____ (1¼" x ¼", etc.), and, where applicable, shall nest easily in standard corrugated _____ (metal, asbestos).
3. Width of panels shall be _____ (or) the same as the corrugated _____ (metal, asbestos) to be used; length shall be _____, (or) as shown on drawings (or) in specification.
4. Thickness shall be _____; average weight _____ oz./sq. ft.; glass content _____ oz./sq. ft.
5. Surface finish shall be Granitized, (or) Smooth.
6. Color shall be _____, with an approximate light transmission of _____% when tested in accordance with recommended procedure (see "Color Chart").
7. Panel shall withstand at least 100 pounds per square foot uniform loading over recommended spans, when tested in accordance with standard procedure adopted by the Society of Plastics Industry.
8. Panels shall be of uniform texture, and cross section, free of unsaturated areas, objectionable pits, lumps or foreign matter.
9. Lappage, Fastening and Weather Sealing shall be in accordance with manufacturer's recommendations (see "General Recommendations").

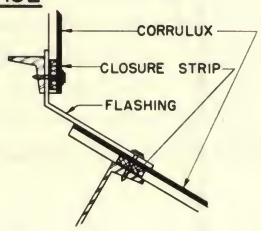
Johns-Manville Corrulux®

typical details

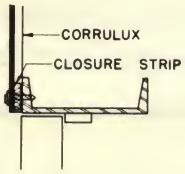
WINDOW SILL



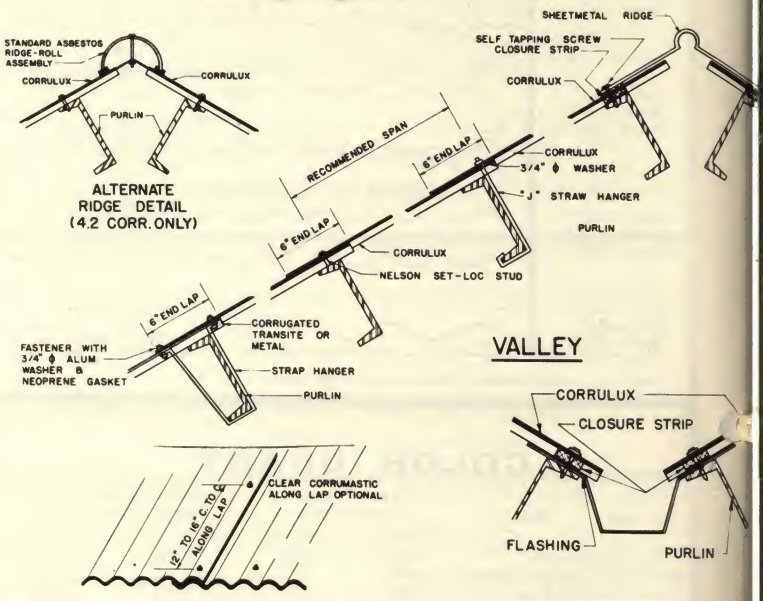
BASE



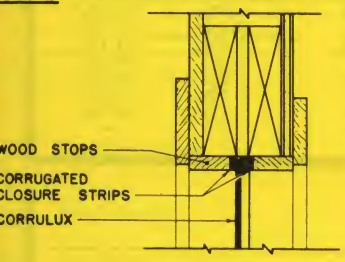
DOOR HEAD



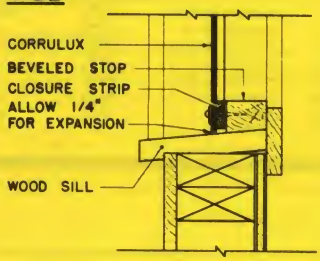
skylights



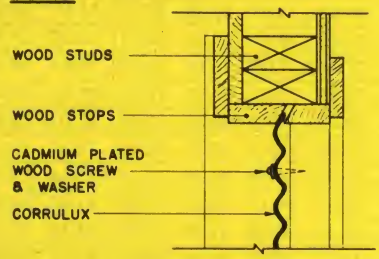
HEAD



SILL

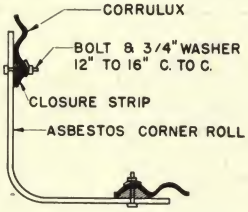


JAMB

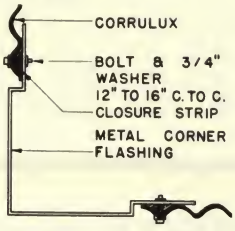


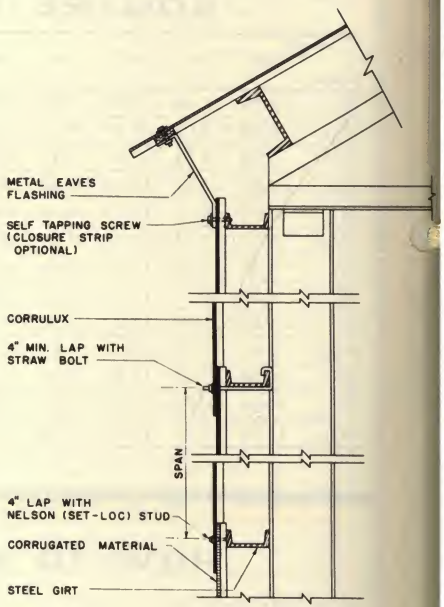
sidelights

CORNER

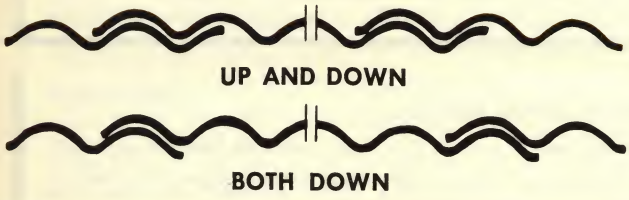


CORNER





lap details



GENERAL RECOMMENDATIONS Corrulux must never be exposed to moisture prior to installation. Always store Corrulux sheets either upright or on edge in order to prevent accumulation of moisture between sheets which may cause water marks. Never pile flat.

PREPARATION Corrulux panels are shipped with a protective film on each side. This film should be removed with a slow diagonal pull and panels wiped clean before installation.

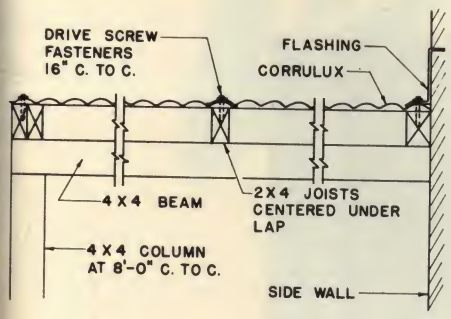
CUTTING Corrulux may be cut with a power saw, hand saw or hack saw. The saw teeth should be fine with no set. For power saws an abrasive disc (fabric-reinforced for safety) or a Perma-Grit blade as manufactured by Skil Corporation, are recommended.

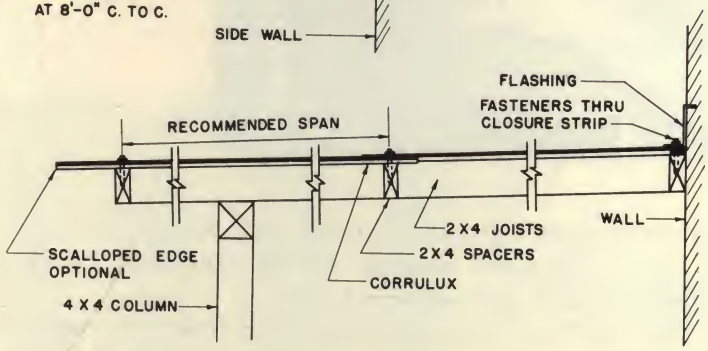
FASTENING Corrulux may be fastened with nails, screws or bolts. Holes for nails or screws should be pre-drilled slightly smaller than fasteners. Fasteners may be the same type as recommended by the manufacturer of the material nesting with the Corrulux, except lead head fasteners which are not recommended for the securement of Corrulux. Do not overdrive or overtighten self-tapping screws. A minimum of 5 fasteners per sheet is recommended along the transverse supports. NOTE: For exterior application metal backed neoprene washers should be used to insure a good weather seal.

WEATHER SEALING At ridge and eaves, use closure strips and metal

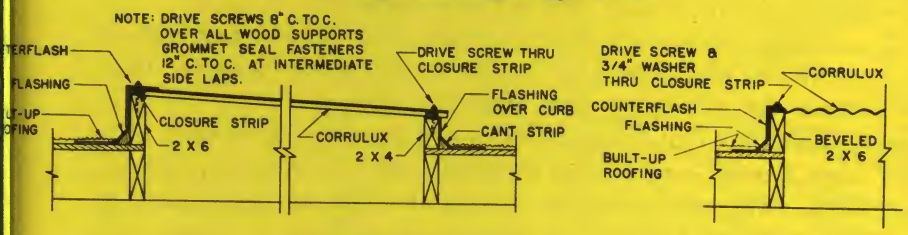
nstallation Details

patio roofs

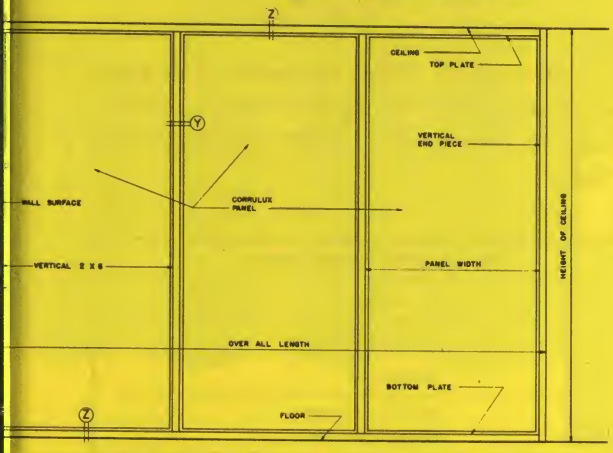


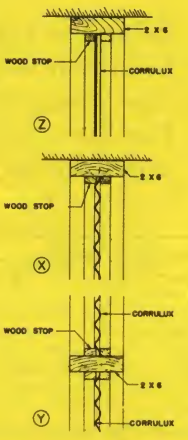


built-up skylights



partitions





flashing according to standard practice. At intermediate end laps use beaded caulking. Side laps should be sealed with plastic sealing strips. Beaded caulking or Corrumastic are also acceptable.

WINDOW GLAZING Standard glazing procedures may be followed when installing flat glazing. If vibrations or wind pressures are expected, plastic type steel sash putty should be used. IMPORTANT: Heavy gauge glazing clips are recommended.

REFINISHING Corrulux has superior erosion resistance, but for best appearance and to retain maximum light transmission, panels subject to severe weathering may be refinished with J-M Corrucote, a fast drying acrylic lacquer. Remove loose fibers and dirt with fine steel wool. Wash with a mild detergent and water before refinishing.

Accessories



Plastic Sidelap Sealer A transparent, flexible sealing strip. Effectively seals side laps. Easy to use. Clear vinyl, continuous 50′ rolls. Available in 1", 2", 3" widths.



Hex-Head Fasteners, Self-Tapping For fast, economical installation. Cadmium plated, assembled with metal-backed neoprene washer. Boxes of 250 and 1,000 units.



Corrumastic Dispensers Corrumastic (45% solids) packaged in squeeze tubes for fast, economical application. 1/10 gallon per tube. Coverage: up to 35 lin. ft./tube.



Aluminum Weather Sealing Nails 1¾" length, spiral shank with neoprene washer attached under head. Boxes of 100 and 525 nails.



Metal-Backed Neoprene Washers For attachment to #10 or 3/16" fasteners to insure weather tight installations. (⅝" O.D. x .220" I.D.) Packaged in boxes of 100, 250 and 1,000 washers.



Heavy Gauge Glazing Clips Recommended for all Corrulux Flat Pane installations. Boxes of 1,000 clips.



Corrucote A fast-drying acrylic lacquer to refinish and renew weather plastic panels or to reduce light transmission in new installations. Recommended application by spraying. Coverage approx. 70 sq. ft./qt. Available in quart or gallon containers. Colors:



Beaded Caulking Used to increase weather tightness of end laps or wherever weather sealing is desirable. (Strips ¼" diameter, continuous lengths. 80′ per roll.)



Corrumastic A clear mastic for sealing of laps. May be used to seal plastic to plastic or to other nesting materials. Coverage: approx. 40 lin. ft./qt. Quart or gallon containers.



Aluminum Flashing Used as recommended for nesting materials and for weather sealing exterior installations. Plain and corrugated ridge rolls and flashing for end and side wall applications are available.



Corrucote Spray Corrucote, as shown, packaged in 16 oz. aerosol containers for faster, more economical application. Coverage: approx. 30 sq. ft./container. Clear only.



Aluminum Molding Extruded and fabricated molding specifically designed for attractive, economical corrugated panel installations.



Grommet-Seal Fasteners For fastening Corrulux to Corrulux or to nesting materials. White neoprene grommet, ¾" aluminum bolt, with nut. Boxes of 250 fasteners.



Closure Strips Used for weather sealing ends when panels do not lap other corrugated materials and for proper fastening and sealing of panel side laps. Available in most common corrugations.

Johns-Manville Corrulux®

(SHATTERPROOF)

FLAT PANES





Johns-Manville shatterproof Corrulux Flat Panes are the logical and economical solution to the frequent, costly replacement of ordinary window panes.

Corrulux Flat Panes are composed of a superior, tough, weather-resistant plastic reinforced with thousands of high strength glass fibers. They defy breakage associated with glass factory windows caused by vandalism, accidental damage and typical factory vibrations.

Being translucent, Corrulux Flat Panes admit and diffuse daylight, eliminate harsh glare and provide privacy. They resist the effects of most industrial fumes.

Corrulux Flat Panes come in pre-cut sizes to fit most window frames—or can be trimmed with a saw to any special size. They are available in smooth finish or granitized, in structural and heavy structural grades. Easy to install—no special glazing skill is needed.

Shatterproof!

Steel ball weighing 2.06 pounds (2½" diameter) released from 4 feet dropped on ordinary Structural Grade Corrulux Flat Pane. No damage to the panel and the ball bounced approximately 1½ feet.

	STRUCTURAL GRADE	HEAVY STRUCTURAL GRADE
Average weight	8 oz./sq. ft.	12 oz./sq. ft.
Average glass content	2 oz./sq. ft.	3 oz./sq. ft.
Surface finish	Granitized or smooth	Granitized
Colors	Maxlite, Skylight Green, Sky Blue	Maxlite, Skylight Green, Sky Blue
Sizes	Available in all standard window sizes	Available in all standard window sizes

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville

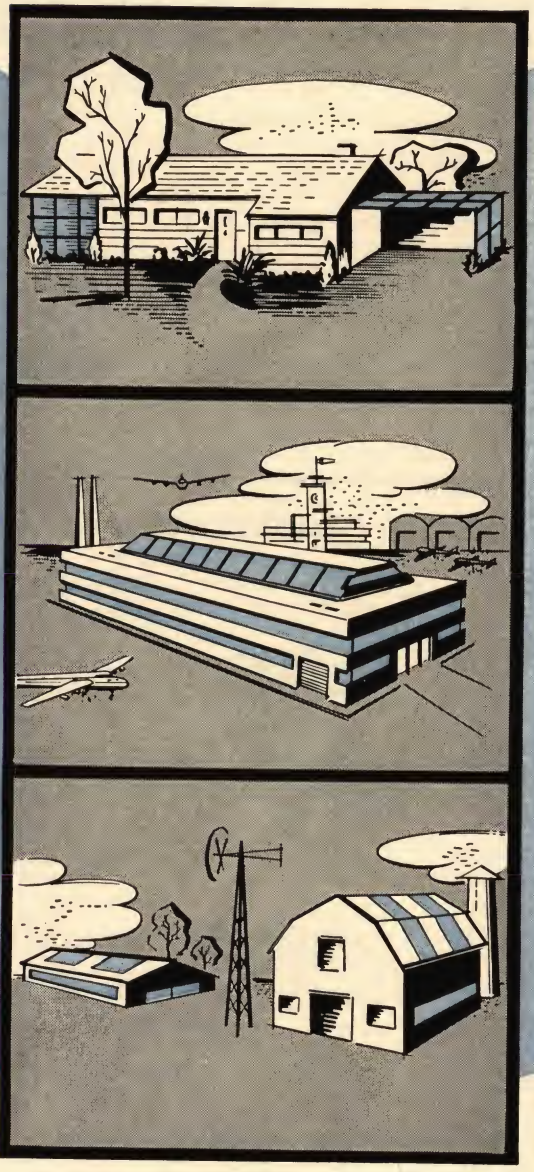
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LITHO IN U.S.

Double
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LASCO LITE

Fiber Glass Building Panels



For
Home

Industry

Farm

SINCE 1947

LYNCH ASBESTOS COMPANY

2939 S. Sunol Drive, Los Angeles 23, Calif. • Telephone: ANgeles 3-6958

AIA FILE No. 26-A-9

FIBER GLASS PANELS

Lascolite is a glass fiber reinforced polyester resin material. The polyester resin used is a premium priced, weather resistant, light stabilized product supplied and especially formulated for translucent building panels.

Lynch Asbestos Co. maintains its own laboratory to constantly analyze all raw materials and assure a quality controlled panel.



Burn Out Test

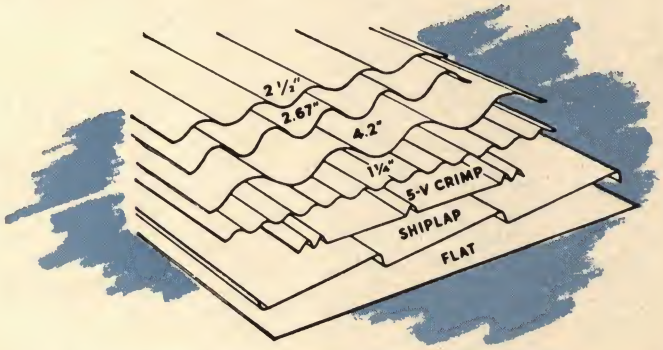
Lascolite panels are available in seven standard shapes and special shapes can be made on request to provide a panel for every possible use.

Commercial skylights, side lights, luminous ceilings, office partitions, store fronts, signs, etc.

Residential patios, awnings, room dividers, carports, fences, shower doors, decorative paneling.

Agricultural poultry houses, work shops, barns, milk sheds.

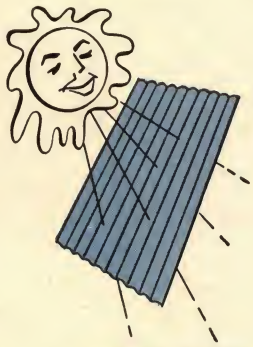
Miscellaneous green houses, truck bodies and roofings, protective shields.



PRODUCT ADVANTAGES

LIGHT TRANSMISSION

Panels are translucent but not transparent. They diffuse and soften light which passes through them. Hence, provide better working light and cut down expensive artificial daylighting.



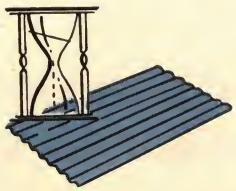
LIGHT IN WEIGHT

Lascolite panels make handling easy, and the tensile strength (twice most metals of comparable thickness) make them practical for portable units.



HIGH STRENGTH

Lynch Asbestos Co., makers of Lascolite, manufacture their own glass mat from the highest quality raw materials under extremely high tolerance and standards of quality control. Hence, Lascolite panels are shatter proof, will not rust, crack, rot, sag or warp.

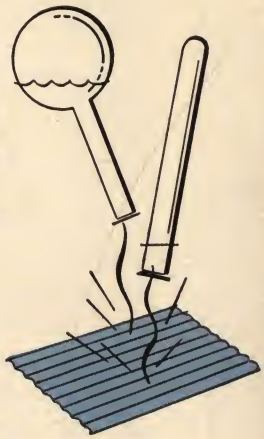


COLOR PERMANENCY

Lascolite pigments, used to color the resin, are the finest available.

RESISTANCE TO ACIDS AND ALKALIS

Lascolite panels are inert in the presence of most mild acids and mild alkali solutions. They can be set directly into ground or concrete without fear of corrosion and they are rodent resistant.



FIRE RESISTANT

Burning embers or sparks from cigarettes, smoke stacks, etc., will not generate enough heat to ignite Lascolite. The glass fiber reinforcement is a barrier to flame break through.

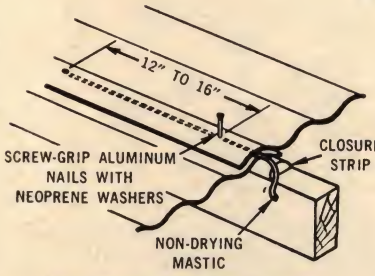


FIRE RETARDANT "FIREBLOCK"

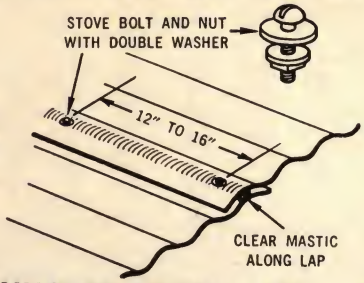
Fire retardant Fireblock panels will not support combustion and will extinguish themselves immediately upon removal of source of flame. (May be used when building code specifies self-extinguishing panels).

DOUBLE CHECKED LASCOLITE—LASTS LONGER

STRUCTURAL DETAILS AND TYPES OF INSTALLATION



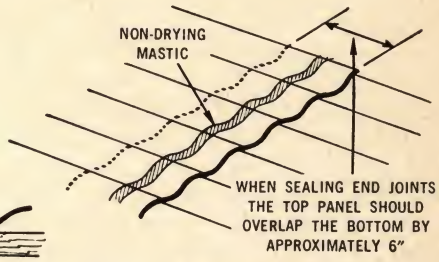
SUPPORTED LAP



UNSUPPORTED LAP



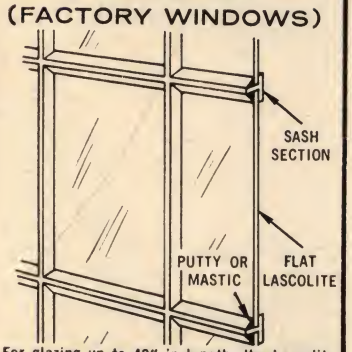
SIDE JOINT DETAIL



END LAP

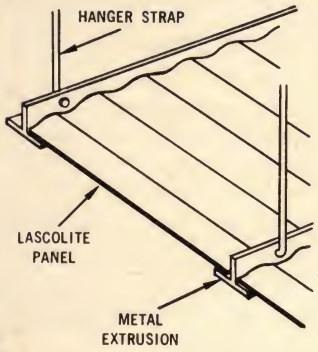
SPECIFY LASCOLITE FOR CONTROLLED LIGHT TRANSMISSION, ECONOMY AND SAFETY.
Lascolite diffused colors reduce eye strain. Lascolite shatter-proof panels eliminate glass breakage in factory, home and office.

GLAZING FLAT LASCOLITE (FACTORY WINDOWS)

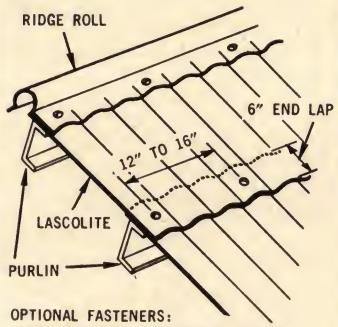


For glazing up to 48" in length, the Lascolite should be 1/8" shorter than the opening.

LUMINOUS CEILING

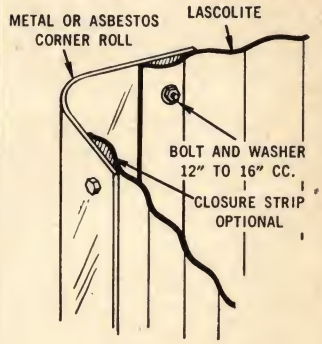


METAL BUILDING ROOF

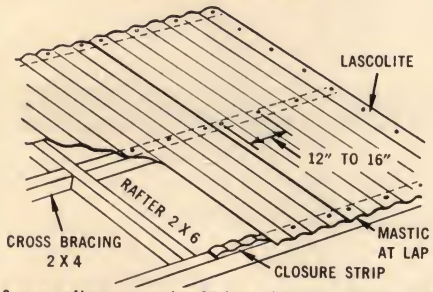


OPTIONAL FASTENERS:
STRAP HANGERS, COMMERCIAL STUDS, "J" STRAWS, PURLIN NAIL, SELF-TAPPING SCREWS WITH WASHER.

CORNER ASSEMBLY

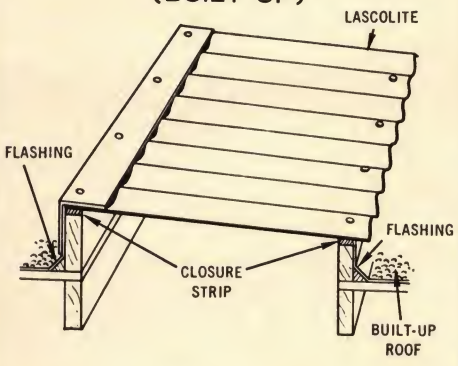


PATIO ROOF

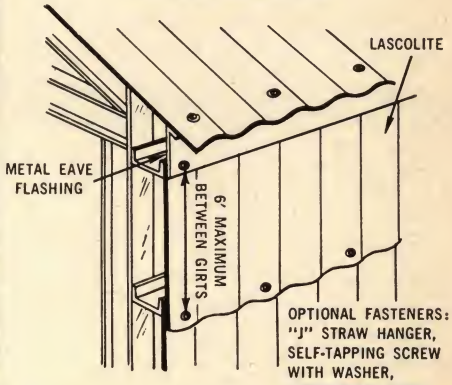


Space rafters on center 2" less than the width of the Lascolite sheets, for example, 26" panels require rafters to have 24" centers except 40" panels which are 37⅜" on center. For panels larger than 26"x 10' one cross brace is recommended except panels 40"x 12' which should be braced every 4'.

SKYLIGHT (BUILT UP)

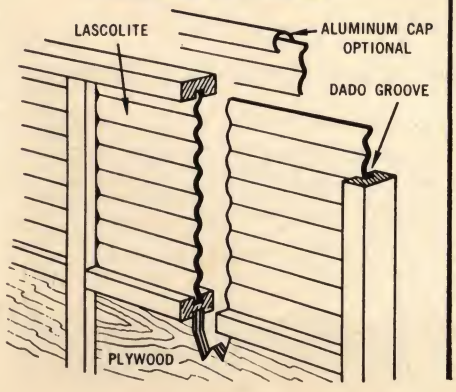


SIDE LIGHTS

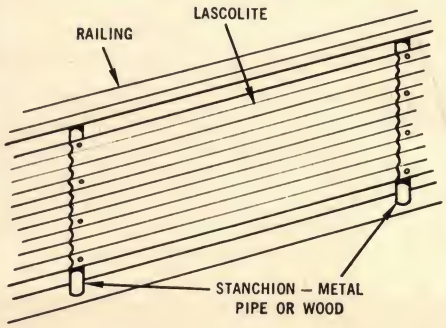


OPTIONAL FASTENERS: "J" STRAW HANGER, SELF-TAPPING SCREW WITH WASHER, COMMERCIAL STUD

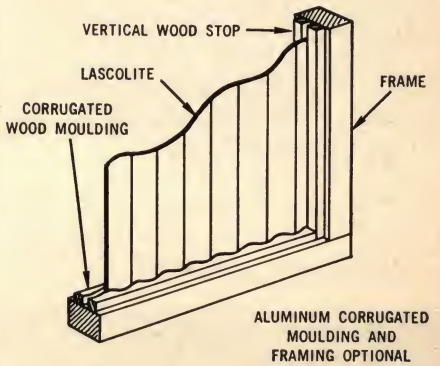
OFFICE DIVIDER



RAILINGS



PARTITION



ARCHITECTURAL SPECIFICATIONS FOR LASCO LITE BUILDING PANELS

PRODUCT DATA

PANEL SHAPES, SIZES AND COLORS

CORRUGATED		WIDTHS	LENGTHS
Width	Depth		
*2½"	9/16"	26", 27½", 34", & 40"	8', 10' and 12'
2.67"	⅞"	33½" and 35"	8' and 10'
4.2"	1"	33½" and 42"	8' and 10'
1¼"	¼"	26", 34", and 40"	8', 10' and 12'
5-V CRIMP		26"	8', 10' and 12'
SHIPLAP 4" Step, ¾" Riser		29½", 38"	8' and 10'
**FLAT		24" and 34"	4' and 8'

*Stock Sizes **Flat Panels stocked in Translucent Color only.

Special Sizes and Colors on Request.

All Panels are available in two average thicknesses: Standard, .050 (6 oz./sq. ft.) or Heavy, .060 (8 oz./sq. ft.).

COLORS: *High Light Transmission*—clear, skylight green, green, blue, aqua, salmon, forest green, sonnet blue.
Low Light Transmission—Solar block yellow, solar block green, solar block sand, solar block snowflake.

TWO AVERAGE THICKNESSES

Std. .050 (1½ oz. mat)
Hev. .060 (2 oz. mat)
(.040 thickness also available for special applications)

SPECIFIC GRAVITY

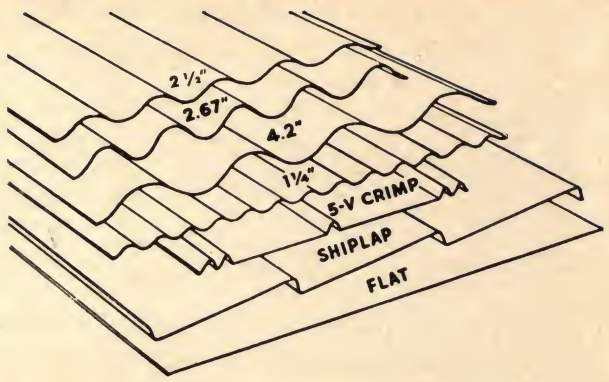
(A.S.T.M. D-792) ..... 1.46 g/cc

WEATHER RESISTANCE

Accelerated weathering test ..... No loss in physical properties (equivalent to 1 year)

STRENGTH (.060)

Tensile strength (A.S.T.M. D-638) ..... 9,000 — 13,000 psi
Flexural strength (A.S.T.M.. D-790) ..... 19,000 — 26,000 psi
Coefficient of thermal expansion ..... 16 x 10^{-6} inches
Modulus of elasticity in flexure ..... 750,000 psi
Impact strength ..... 18.5 lbs. per in. notch



FIRE RESISTANCE

Ignition point ..... 800-900 degrees F.
Rate of burning (A.S.T.M. D-635-44) ..... .50 inches per min.

ELECTRICAL PROPERTIES

Dielectric strength ..... 500 volts per mil.

HEAT TRANSMISSION

B.T.U./hr./sq. ft.
thickness/degree F. 1.23
Conduction compared to glass ..... 60% less

LIGHT TRANSMISSION CHART

Lascolite colors listed according to approximate percentage of light transmission of glass.

HIGH LIGHT TRANSMISSION		LOW LIGHT TRANSMISSION	
Clear	85%	Solar block yellow	30%
Skylight green	80%	Solar block green	30%
Green	70%	Solar block sand	30%
Blue	68%	Solar block snowflake	30%
Aqua	65%		
Salmon	55%		
Forest green	55%		
Sonnet blue	55%		

LASCOLITE USES

Lascolite can be used in the same manner as plywood or corrugated metal. See the many uses on page two for home, farm, commerce and industrial applications.

LASCOLITE FLAT PANES

Eliminate breakage costs. Promote safe and effective lighting. Cut electricity bills by specifying Lascolite shatter proof flat panes.

See light transmission chart to select most advantageous color for your specific lighting problem.

EASY TO WORK

Panels may be fabricated with standard building tools. Easy to saw, nail or drill. Mastics may be applied or panels can be nailed, screwed or bolted.

LASCOPIPE AND FITTINGS

For highest quality in plastic pipe, Polyethylene, PVC, ABS (kralastic) or Flexvinyl, specify Lascopipe—the lasting pipe.

Send for complete catalog.

Lascopipe is an affiliate of Lynch Asbestos Co.

SPECIFY LASCOLITE FOR QUALITY & ECONOMY

DEALERS, DISTRIBUTORS, WAREHOUSE STOCKS
COAST TO COAST

—— SINCE 1947 ——

LYNCH ASBESTOS COMPANY

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Design Information

Resolite

Translucent Fiberglass Panels

7d
Re

Imaginative Design with Resolite Panels Saves $200,000

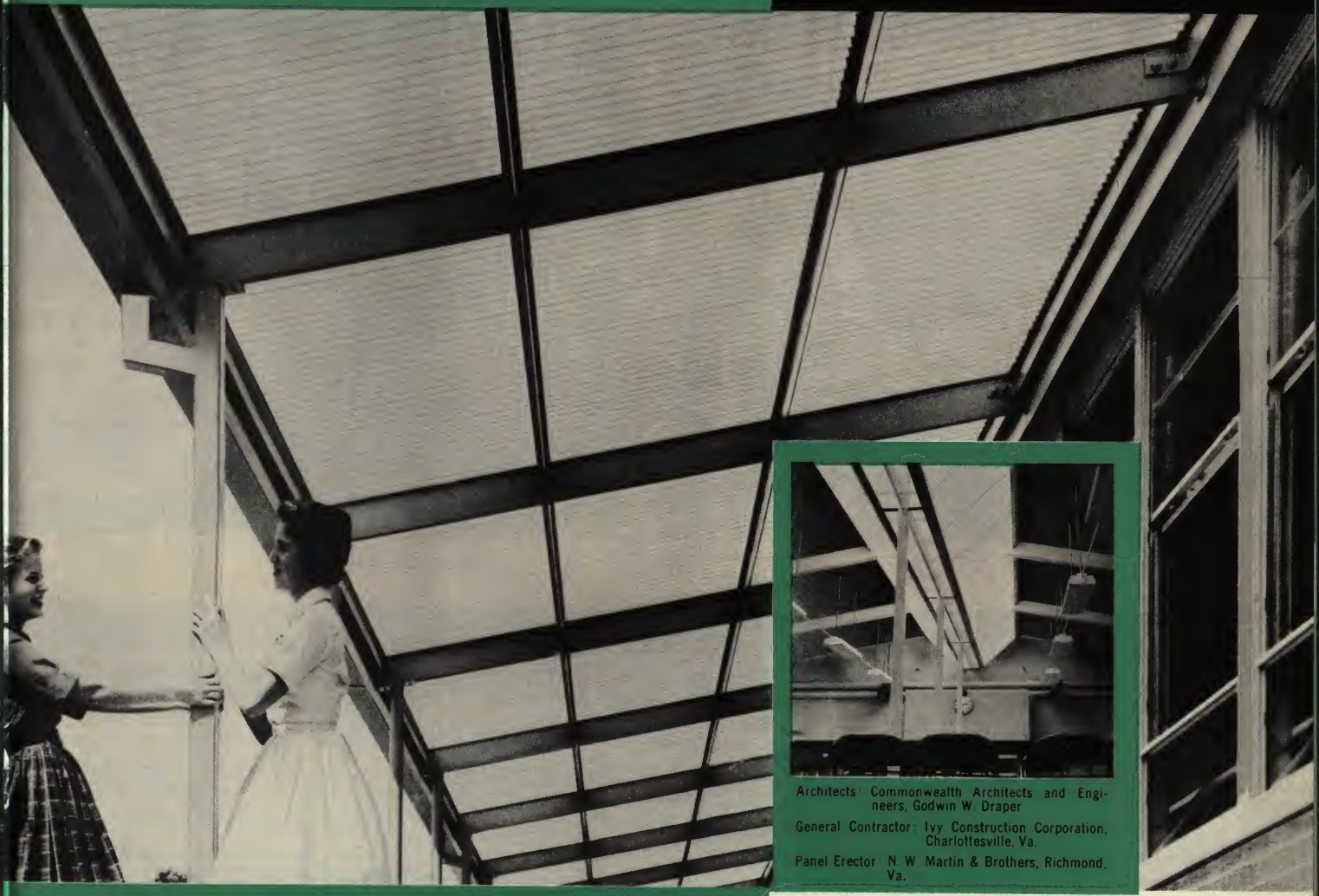
Architects who designed the Tuckahoe Junior High School in Henrico County, Virginia opened the way to a $200,000 savings in building costs by eliminating inside corridors and designing exterior walkways roofed with Resolite translucent fiberglass panels.

The savings—about $2.00 per square foot—were possible because of the elimination of an interior wall and a large reduction in total roof area and total enclosed cubage.

The pearl Resolite panels overhang the walkways by nine feet and diffuse light softly at a specified transmission value of 60%.

The panels present no fire hazard because they are Resolite's "Fire-Snuf" panels containing a flame-retardant polyester resin. Identical panels are used in skylights which double as plenum chambers. Light coming through these panels is diffused so well that an 18-inch duct casts no visible shadow.

Detailed prints of the daylighting system employed are available for study.



Architects: Commonwealth Architects and Engineers, Godwin W. Draper

General Contractor: Ivy Construction Corporation, Charlottesville, Va.

Panel Erector: N. W. Martin & Brothers, Richmond, Va.

Plus Information on

Security Panel

Exclusively by Resolite!



Resolite Corporation

Zelienople, Pa.

Resolite

is a distinctive, versatile material with countless uses in all types of buildings

Resolite is a translucent, fiberglass-reinforced polyester resin material available in a wide range of styles and colors and suitable for an unlimited number of applications in residential and non-residential building. Resolite panels are amazingly strong and are shatterproof, thus eliminating the need for replacement because of breakage.

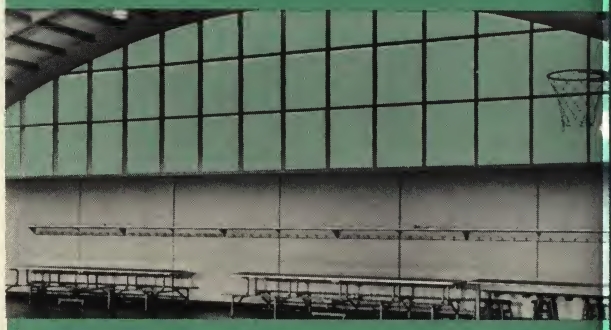
In both artificial and natural light diffusion, Resolite panels perform their function perfectly, providing soft, even light instead of harsh contrasts of brilliance and shadow. In decorative functions, the striking beauty and style of Resolite panels gives the architect and designer the opportunity to create almost any effect he desires.

Resolite is available in a wide selection of colors, finishes, and shapes, specifications for which appear on these pages. Additional information and samples may be obtained by writing Resolite Corporation, Zelienople, Pa.

The interior of this huge plant is fully daylighted because Resolite corrugated panels are nested with the aluminum sheets to form continuous bands of diffused light. The plant, in Cleveland, Ohio, is operated by Alcoa for the U. S. Air Force.



Modern schools like the Smith School at Bremerton, Washington, need Resolite for plenty of light in classrooms and gymnasium. Resolite filters the light so that there are no objectionable areas of shadow and brilliance.



Fire-Snuf Panel,

the industry's first fire-retardant panel labeled and listed by Underwriters' Laboratories, Inc. and first approved by Factory Mutual, and manufactured by Resolite. A flame spread rating of below 75 is available. These panels are available with Super Hardcoat and the process does not affect the UL rating.





Specification data on Resolite Standard, Fire-Snuf and Security Panels

Suggested Specifications

Resolite Standard Panels

"Sheets shall be Resolite as manufactured by Resolite Corp., Zelienople, Pa., composed of light-stabilized polyester resins reinforced with a mat of glass fibers, approximately by weight 70% resins and 30% glass. Weight of sheets shall be approximately___* lbs. per sq. ft. Color shall be_____** and panels shall be installed according to Resolite's current application instructions, employing fasteners as recommended."

*See Table, Page 3 and **Page 4

Resolite Fire-Snuf Panels

". . . and panels shall be Fire-Snuf as manufactured by Resolite Corp., Zelienople, Pa., listed and labeled by Underwriters' Laboratories, Inc., and approved by Factory Mutual Engineering Division."

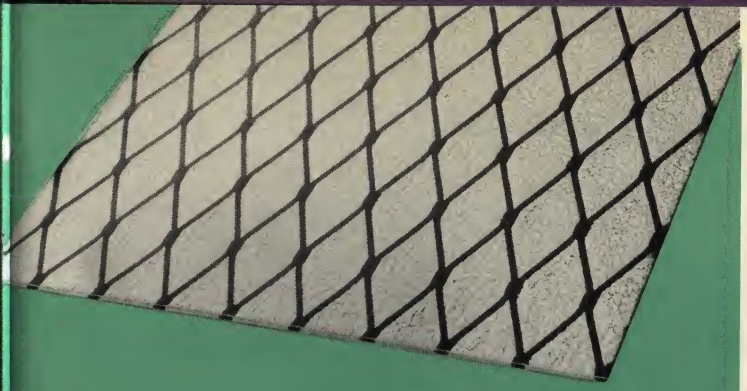
Resolite Security Panels

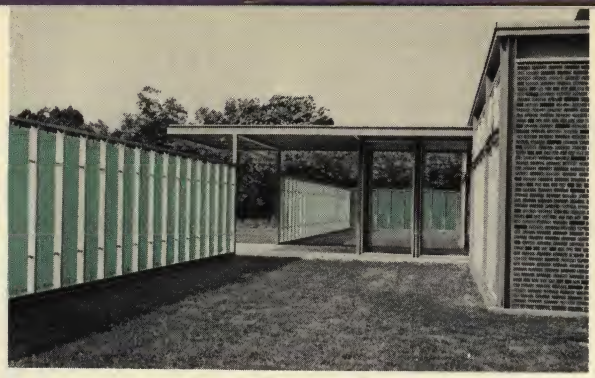
"Reinforced glazing shall be Security Junior Panel (or Security Panel) as manufactured by Resolite Corp., Zelienople, Pa., composed of light-stabilized polyester resins reinforced with both fiberglass mat and expanded 16 to 18 gauge steel (or .081 gauge aluminum) and lacquer coated."

Technical Data, Security Panels	Security*	Security Junior**
Expanded Metal	16-18 gauge steel	16-18 gauge steel .081 gauge aluminum
Mesh size	¾″	1½″
Fiberglass mat weight	3 oz.	1½″
Thickness (approx.)	.125″	.075″
Weight, lbs./sq. ft.	1.4	Steel .75 — Alum. .63
Impact strength, without rupture	125 lbs.	100 lbs.*
Load deflection	25 p.s.i. 2.5″	25 p.s.i. 3.0″
Adequately fastened on	50 p.s.i. 3.25″	50 p.s.i. 4.0″
4 ft. span	100 p.s.i. 4:25″	100 p.s.i. 5.13″
Estimated Failure Point	200-250 p.s.i.	175-200 p.s.i.

Colors available— *Pale Green, Ice Blue and Semi-Clear.

**Pale Green, Ice Blue, Semi-Clear, Yellow, Sky Blue and Coral. Available in smooth or embossed finish.





A unique original in the industry . . .

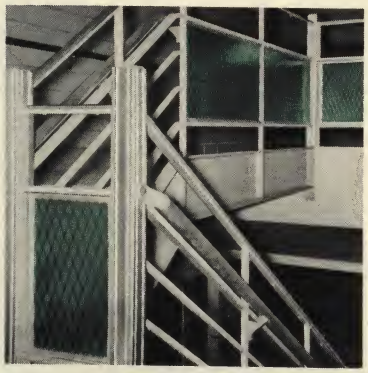
Resolite "Security Panel"

Resolite Security Panel, a revolutionary type of polyester resin panel, is a flat sheet reinforced with both a fiberglass mat and heavy gauge steel or aluminum. It combines the strength of metal and the well-known beauty of translucent Resolite panels.

Security Panel has high dimensional stability because of the metal reinforcement and has been designed to provide exceptionally high impact strength. Because it is virtually unbreakable, it is a superior glazing material for windows, doors and skylights and for protection against unauthorized entry and vandalism.

Visually, the Security Panel gives the appearance of old-fashioned leaded glass and makes an attractive appearance whether light sources strike the panel from the front or silhouette the metal from the rear.

In order to maintain the lustrous finish of the expanded steel, it is first plated with zinc by an electrolytic process. Security Panel is offered by Resolite with two different sizes of mesh of expanded metal and weight of fiberglass mat. Security Junior has a 1½" mesh and 1½ ounce mat. Standard Security Panel has ¾" mesh and a 3 ounce mat. It is available in sheets up to 4 feet by 10 feet and is coated with Resolite Super Hard Coat for added protection to its glossy surface.

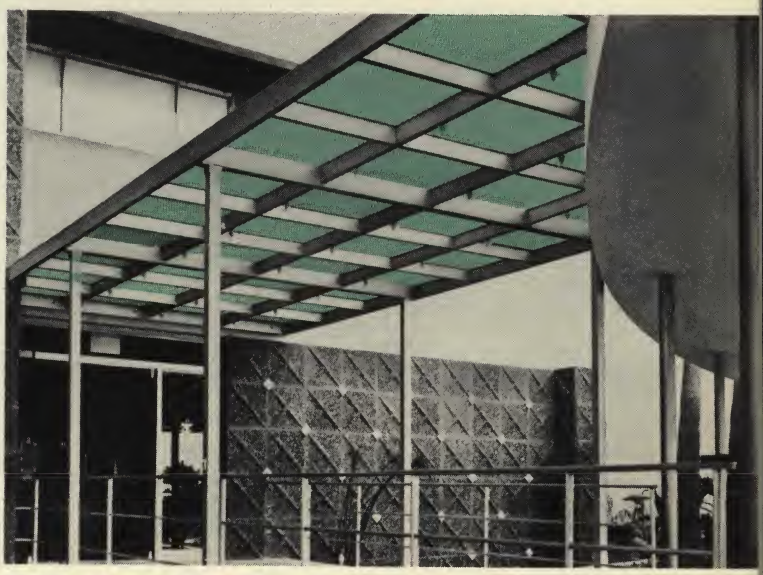


Resolite Security Panel was specified for both interior and exterior use in this modern laboratory, shown above. The vertical panel motif was used for a windscreen and interior partitions.

Owner: American Cyanamid Company
Research Laboratory
Wallingford, Conn.

Architect: Paderson & Tilney
New York, N. Y.

A popular use for Resolite Security Panel is shown at the left. Many architects have specified it as a guard on stairways in schools.



Security Panel is used as a canopy, below, to cover a ramp leading to a Miami hotel roof deck swimming pool.

16 to 18 gauge expanded steel or aluminum.

Other Pertinent Facts About Resolite Translucent Fiberglass Panels

Resolite Panel Specifications

	Corrugation	Trim Finish	Type of Sheet	Finished Width	Std. Side Lap	Coverage Width	Standard Lengths	Approx. Wgt. Per Sq. Ft.
2.67" .056"	2½" Std. (2⅝" Pitch)	1 up, 1 down	roofing	27½", 33", 51½"	1½"	24", 29½", 48"	1' to 12'	0.5 lbs.
		both down	siding	26", 40", 50½"	1"	24", 37½", 48"	1' to 12'	0.5 lbs.
2.67" ⅞"	2.67 x ⅞"	1 up, 1 down	roofing	35", 48-1/3"	1½"	32", 45-1/3"	1' to 12'	0.5 lbs.
		both down	siding	33¾", 47"	1"	32", 45-1/3"	1' to 12'	0.5 lbs.
42" 1/16"	4.2"	both down	roofing or siding	42"	1"	37-4/5"	1' to 12'	0.5 lbs.
4 7/8" and 5½" 3/4" 1 3/4" 3/4"	V-Beam (5½" Pitch) (1¾" Depth)	both down	roofing or siding	29"	1"	26½"	1' to 12'	0.5 lbs.
	V-Beam (4⅛" Pitch) (1¾" Depth)	both down	roofing or siding	41⅛"	1"	39"	1' to 12'	0.5 lbs.
40" and 80" 1 5/8" 3/8" 1/2" 3/8"	Square Rib (4" x 8" Rib) (1" Depth)	1 up, 1 down	roofing or siding	41⅛"	1"	40"	1' to 12'	0.5 lbs.
	Standard Flat	straight	—	up to 42"	window lights are factory cut to order	—	up to 8'	0.4 lbs.
	Security and Security Jr.	—	—	up to 48"	—	—	up to 10'	1.4 lbs. (Security) .75" (Security Jr.)

Notes: Standard quonset sizes and curved sheets available.
All corrugated sheets are available in Smooth and Embossed finishes up to 40" wide. Over 40", Smooth only. Flats and Security Panels available in all widths and in both finishes.

Nominal thickness of all standard sheets is .06", Extra Heavy sheets .09".
Width and length tolerance for all sheets ¼".
Resolite conforms with Commercial Standard Specifications CS 214-57.

Other Pertinent Facts About Resolite Translucent Fiberglass Panels

Loading Recommendations (Standard Weight Materials)

Based on S.P.I. test procedures, the allowable load for 2½ ″ Fire-Snuf and Standard Resolite Panels, with standard end connections is a minimum of 100 lbs. per square foot.

Span Recommendations (Standard Weight Materials)

Under normal conditions and based on A.I.S.C. specifications for live loads, the recommended maximum purlin and girt spans for the various Fire-Snuf and Resolite corrugations, using standard end connections, and allowing for a safety factor of 2, are as follows:

Corrugation	Pitched roof purlin span	Wall girt span
Standard 2½ ″	4′-0″	4′-6″
Extra Heavy 2½ ″	5′-0″	6′-0″
Standard or Extra Heavy 2.67 x ⅞ ″, 4.2″, V-Beam & Square Rib	5′-6″	6′-0″

Physical Properties (Standard Weight Materials)

Property	Fire-Snuf	Resolite
Nominal Weight, lbs. per sq. ft. (varies with corrugation)	0.50	0.50
Standard / Extra Heavy		
2½ ″ and 4.2″ corrugation 0.5#/sq. ft. 0.7#/sq. ft.		
2.67 ″ corrugation 0.55#/sq. ft. 0.77#/sq. ft.		
Nominal Thickness, inches	0.055	0.060
Hardness, Barcol	45-55	45-55
Flexural strength, psi[1]	23,960	22,420
Tensile strength, psi[1]	14,720	10,380
Mod. of elasticity, psi[1]	0.98 x 10^6	1.14 x 10^6
Izod impact, ft. lbs. per inch of notch[1]	13.38	7.80
Coefficient of expansion, in. per in. per °F[1]	17.5 x 10^6	23.2 x 10^6
Thermal conductivity, K factor (per inch thickness)	1.02	1.40
Dielectric strength, RMS volts at 60 cycles	42,600	40,800
Fire Resistance		
Flame spread rating[2]	Under 75	
Fire Hazard Classification[3]	Approved:	—
Flammability (A.S.T.M. d-635-44)[1]	Fire Retardant	—
	Self-extinguishing	—

1. Pittsburgh Testing Laboratories, Pittsburgh, Pa.

2. Underwriters' Laboratories, Inc., Chicago, Ill.

3. Factory Mutual Laboratories, Norwood, Mass.

Colors Available

Over the years, Resolite has developed attractive colors, with specific characteristics for better light transmission, visual comfort or purely decorative effect. The standard industrial colors, for example, are recommended for skylighting and other daylighting purposes since they are efficient light transmitters, allowing just the proper amount of light to be transmitted. The decorator colors, like Coral and Foliage Green have been developed for the beauty of their appearance rather than their ability to transmit light.

Light Transmission (SPI Transmissometer)

Industrial Colors			
Standard Green*	72%	Foliage Green	30%
Pale Green	80%	SS Yellow*	45%
Semi-Clear*	87%	SS Green	40%
Aqualite*	72%	SS Ivory*	40%
Decorator Colors		SS White*	23%
Coral	37%	SS Coral	13%
		SS Blue	5%

*Available in Fire-Snut panels.

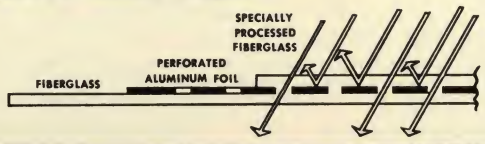
Note: Decorator colors available with either standard 2 oz. fiberglass mat or 1½ oz. mat.

Patent applied for

Resolite Foil-Glass

Aluminum Foil + Fiberglass

A new, distinctive and beautiful panel designed especially for cool, glareless, comfortable patios and other sunshade uses. Available in pastel green, blue, yellow and coral and in 2½″ standard corrugation.



For Years of Additional Life . . .

Resolite Super Hardcoat

This special process provides years of additional life and protection for Resolite exposed to weather and sunlight. Any Resolite daylighting product can be given Super Hardcoat protection at the factory. U.L. approved.



Untreated — Protected with Super Hardcoat

(Above sample exposed to severe weathering by the South Florida Test Service.)

If We Can Be of Any Service to You . . .

Years of experience in working with daylighting problems have given Resolite engineers the opportunity to help design thousands of installations that fully meet industry requirements. Please feel free to call Resolite if you would like to discuss any daylighting problem or if you would like additional information about any Resolite product.

Resolite Corporation
Zelienople, Pa.

Resolite Has Available a Complete Line of Accessory Materials

ACRYLIC PLASTIC

PLEXIGLAS

IN ARCHITECTURE



ROHM & HAAS COMPANY
Washington Square
Philadelphia 5, Pa.

Architectural Characteristics 2
Types of Plexiglas Sheets 3
Sizes, Thicknesses, Properties 4-5
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PLEXIGLAS IN ARCHITECTURE

The vision and ingenuity of the architectural profession in accepting new material and finding proper applications for it have resulted in the widespread use of Plexiglas acrylic plastic.

Plexiglas is no longer a new material. For more than ten years, architects have used it under varying conditions, including outdoor exposure, that have proven the stability of this plastic. Today, as a basic component of many standard building products and in custom installations, Plexiglas is contributing beauty, utility, and safety in lighting, skylighting, window glazing, signs and many other fields of application.

This brochure describes the characteristics of Plexiglas as an architectural material, its uses, the various types of Plexiglas that are available, and presents information required for proper specifications, designs and assemblies.

ARCHITECTURAL APPLICATIONS

Rohm & Haas Company manufactures Plexiglas acrylic plastic sheets and molding powders. These are formed, fabricated, molded and assembled by other manufacturers for architectural use.

Architectural applications for Plexiglas are in two categories—Standard Building Products, and Custom Designed Applications.

STANDARD BUILDING PRODUCTS

Corrugated sheets
Daylight louver panels
Directional signs
Dome skylights
Edge-lighted sculpture
Flat sheets
Formed panels
Lighted letter signs
Lighting equipment
Luminous ceilings
Shower enclosures
Store display fixtures: display stands, millinery and hat trees, counter dividers, drawer trays
Three-dimensional formed letters

The names of manufacturers, fabricators, and dealers handling specific types of standard Plexiglas products for architectural uses can be obtained from Rohm & Haas Company.

CUSTOM DESIGNED APPLICATIONS

Architectural signs
Custom display fixtures: display envelopes, show cases, tiered display shelves, wall display boxes
Formed windows
Hardware: door knobs, kick plates, light switch plates, splash plates, towel rings and racks
Interior decorative pieces: bowls, dishes, lamp bases, vases, interior-carved panels, embedded objets d'art
Luminous store fronts
Valance and soffit lighting shields and diffusers
Partitions
Spandrel panels
Miscellaneous: models, blueprint covers, display cases, exhibit housings

Custom designed Plexiglas products can be ordered from custom fabricators and sign manufacturers. Names of sources are available on request.

TYPES OF PLEXIGLAS SHEETS

There are five types of Plexiglas sheets for architectural use:

1. **Plexiglas Colorless**
2. **Plexiglas Colored**
3. **Plexiglas Patterned**
4. **Plexiglas 5009 Flame-Resistant**
5. **Plexiglas II UF (Ultra-violet absorbing at 375 millimicrons)**

See pages 4-5 for properties and sizes.

All five types of Plexiglas can be specified in a wide variety of thicknesses and sheet sizes. Selection of the proper type, color, thickness and sheet size for a specific architectural application is important. Manufacturers using Plexiglas in standard building products have carefully considered these factors.

ARCHITECTURAL CHARACTERISTICS

1 transparency

In colorless form, Plexiglas is as transparent as the finest optical glass. It is also manufactured in a complete range of transparent and translucent colors.

2 outdoor stability

Plexiglas is an acrylic plastic, with time-proved ability to withstand exposure to weather and to give long trouble-free service in outdoor applications. Many carefully developed and tested Plexiglas colors show no appreciable change over long periods of exposure to sunlight.

3 light transmission

Colorless Plexiglas transmits a total of 92% white light. White translucent Plexiglas sheets, commonly used as diffusers, have light transmittance values up to 65%. Used as the diffusing material on well designed lighting fixtures with high-reflectance surfaces, Plexiglas has up to 90% transmission efficiency.

4 light diffusion

White translucent sheets diffuse light evenly in all directions. With proper lamp spacing, this results in excellent uniformity of brightness across the visible surfaces of back-lighted Plexiglas sheets.

5 luminous color effects

The wide range of outdoor-stable translucent colors in which Plexiglas is available adds to its effectiveness as a sign material. Back-lighted Plexiglas sign faces become large multi-colored, luminous, surfaces at night.

6 glare reduction

Various transparent Plexiglas colors control daylight by reducing glare. Blue, green and smoky gray colors are excellent for window glazing where sky glare is a problem.

7 breakage resistance, light weight

Although less than one-half the weight of glass, Plexiglas has six to seventeen times greater resistance to breakage from impact, in thicknesses of 1/8″ to 1/4″.

8 versatility

Plexiglas can be formed easily to almost any shape or curve, when heated to a pliable state. Using recommended tools, it can be sawed, drilled and machined like wood or soft metals.

1. PLEXIGLAS COLORLESS SHEET

PROPERTIES

Specific Gravity	1.19
Tensile Strength (psi)	10,500
Flexural Strength (psi)	16,000
Compressive Strength (psi)	18,000
Modulus of Elasticity (psi)	450,000
Maximum Service Temperature (continuous) (°F)	180-200
Coefficient of Thermal Expansion (in./in.°F)	.00005
Total White Light Transmittance (%)	92
Refractive Index	1.49

dimensional stability. Plexiglas has outstanding dimensional stability and resistance to cold flow or creep. It does not become brittle at low temperatures.

u-factor. .187″-thick Plexiglas = 1.09 B.T.U.'s per hour per square foot per degree F. with 15 mph 0°F. air on one side and 0 mph 70°F. air on the other side. .187″-thick glass = 1.23 B.T.U.'s.

electrical properties. Plexiglas is an excellent insulator. Its properties are not affected by age, weather or immersion in water.

fire resistance. Plexiglas is classified as a "slow burning plastic" material by Underwriters' Laboratories, Inc., Re-Examination Service File MH-4833.

thicknesses	standard sizes											
	36″ x 60″	48″ x 72″	48″ x 96″	53″ x 80″	53″ x 90″	60″ x 72″	60″ x 84″	60″ x 96″	60″ x 102″	67″ x 79″	67″ x 102″	72″ x 72″
.060″	X	X										
.080″	X	X										
.100″	X	X										
.125″	X	X	X	X	X	X	X	X	X	X	X	X
.187″	X	X	X	X	X	X	X	X	X	X	X	X
.250″	X	X	X	X	X	X	X	X	X	X	X	X

size 60″ x 72″	size 48″ x 60″
.312″	1.250″
.375″	1.500″
.500″	1.750″
.625″	2.000″
.750″	2.250″
.875″	2.500″
1.000″	3.000″

2. PLEXIGLAS COLORED SHEET

PROPERTIES

Properties of colored sheets, except optical, are substantially the same as for Plexiglas Colorless sheet.

The following list of standard colors includes light transmission values, except for denser colors. When dense-color Plexiglas is formed into letters, the stretching of the material increases the light transmission to a considerable degree.

thicknesses	standard sizes								
	36″ x 60″	36″ x 72″	42″ x 84″	48″ x 48″	48″ x 60″	48″ x 72″	60″ x 72″	60″ x 96″	72″ x 72″
.060″	X*								
.080″	X*	X*							
.100″	X*	X*							
.125″	X	X**	X	X**	X**	X	X***		
.187″	X		X	X**		X	X***	X***	X***
.250″			X			X**			

*In white translucent W-2447 and W-7420 only.

**In white translucent W-2447 only.

***In white translucent W-7328 only.

thicknesses	non-standard sizes																	
	36″ x 60″	36″ x 72″	42″ x 84″	48″ x 48″	48″ x 60″	48″ x 72″	48″ x 96″	50″ x 80″	52″ x 52″	52″ x 104″	53″ x 80″	53″ x 90″	60″ x 60″	60″ x 72″	60″ x 96″	60″ x 102″	67″ x 79″	67″ x 102″	72″ x 72″
.060″	X																		
.080″	X			X															
.100″	X			X															
.125″		X	X	X	X			X	X		X		X	X					
.187″		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
.250″	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

STANDARD COLORS*

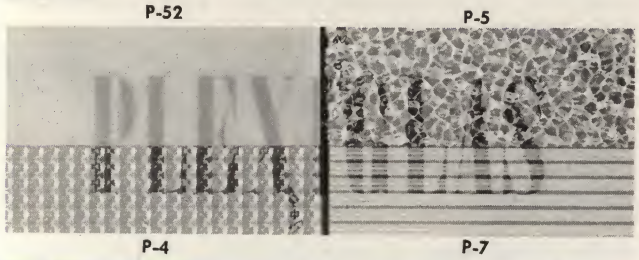
color no.	description	% luminous transmittance**
transparent		
2045	dark blue transparent	8
2064	gray transparent	27
2069	blue transparent	54
2074	gray transparent	14
2082	green transparent	69
2083	medium blue transparent	19
2092	dark green transparent	24
2111	green transparent	78
2208	yellow transparent	81
2444	dark red transparent	8
2451	amber transparent	51
translucent		
W2067	white translucent	67 (.125″ thick)
W2159	white translucent	59 (.125″ thick)
W2254	white translucent	54 (.125″ thick)
W2447	white translucent	47 (.125″ thick)
W7138	white translucent	38 (.125″ thick)
W7328	white translucent	28 (.125″ thick)
W7420	white translucent	20 (.125″ thick)
2016	yellow translucent	20
2030	green translucent	8
2037	yellow translucent	26
2039	red translucent	0
2047	green translucent	35
2050	blue translucent	2
2051	blue translucent	19
2108	green translucent	2
2119	orange translucent	7
2146	ivory translucent	30
2157	red translucent	2
2199	beige translucent	7
2200	cool white translucent	24
2201	blue translucent	2
2202	green translucent	6
2203	chartreuse translucent	16
2204	coral translucent	4
2415	red translucent	10
fluorescent		
2085	red daylight fluorescent	9
2086	yellow daylight fluorescent	9
2154	green daylight fluorescent	91
opaque		
2025	black opaque	0

*Outdoor Stability Ratings available on request.

**C.I.E. Illuminant C, indicative of north daylight.

3. PLEXIGLAS PATTERNED COLORLESS SHEET

Patterned Plexiglas sheets are supplied only as colorless material.



standard patterns	description
P-4	pyramids, approx. 64/sq. in.
P-5	rippled design
P-7*	ribbed, approx. 8 lines/in.
P-52	matte finish

*Pattern runs parallel to long dimension of the sheet.

standard sheets	standard thicknesses
36" x 48" 36" x 60" (P-52 only)	.125" and .250"

4. PLEXIGLAS 5009 FLAME-RESISTANT

Plexiglas 5009 is an acrylic sheet with a burning rate which, under standard ASTM test conditions, classifies it as self-extinguishing. It is especially suitable for large area indoor lighting such as luminous ceilings where the degree of flammability may be important. It is available in white translucent color only (Color No. W-2160 in .080", .100", .125" thicknesses; Color No. W-2353 in .100", .125", .187" thicknesses; Color No. W-2647 in .125", .187", .250" thicknesses and Color No. W-2340 in .375" and .500" thicknesses only.)

The flame-resistant advantage of Plexiglas 5009 is gained at the expense of certain other properties. Plexiglas 5009 has lower tensile, flexural and compressive strengths than the Plexiglas sheets previously described. It also has lower heat resistance and notably less weather resistance. It is not recommended for outdoor use.

Plexiglas 5009 has excellent resistance to the effects of fluorescent light and, therefore, is recommended for indoor lighting applications.

standard sheets			standard thicknesses
36" x 48"	48" x 48"*		
36" x 60"	48" x 60"*	36" x 72"*	.080", .100", .125"
40" x 50"	*.125" thickness only		

5. PLEXIGLAS II UF

Plexiglas II UF is a transparent, colorless material developed to absorb radiation in the ultraviolet range just below the visible spectrum, for prevention of damage to art objects. The material cuts off ultra-violet at about 375 millimicrons.

Plexiglas II UF is recommended for use as a filter for fluorescent-lighted display cases and similar applications, where art objects are exhibited. Through the use of this material, the expected life of art objects can be increased by a factor of as much as five.

standard sheets	standard thicknesses
all standard Plexiglas colorless sheet sizes.	.060", .080", .100", .125", .150", .187", .250"

FABRICATION INFORMATION

Detailed fabricating instructions are available. See publications listed on back cover.

cutting. Ordinary band, circular or jig saws are used to cut Plexiglas. Circular blades should be 8"-10" diameter, operating at 3400 rpm. Blades should be 3/32"-1/8" thick with 6-8 teeth per inch, alternately set and filed radially.

drilling. Best results are achieved by repointing the twist drills commonly used for metals. The point should have the cutting edge ground to zero rake angle, to give a scraping action. The included angle of the point should be 55°-60°. Moderate speeds and light pressure should be used.

cementing. Cements for Plexiglas are solvents that soften the plastic surface. When pressed together, the softened surfaces intermingle and, as the solvent evaporates, a hard joint results. Rohm & Haas Company Cement II should be used with Plexiglas.

forming. Plexiglas sheet becomes soft and pliable when heated to 275°-320°F. It can then be formed to almost any shape, which is retained when the material cools.

forms. Since the forms are not subjected to great pressure, they can be made of plaster, wood, plywood, impregnated wood, or metal. As a result, custom formed shapes can be obtained economically in relatively low quantities.

shapes. For simple shapes, a heated Plexiglas sheet is placed on a form and held at the edges until cool. More deeply formed parts can be made by stretching the hot plastic over a form and clamping the sheet at the edges. Many three-dimensional shapes are made by the use of air-pressure differentials (vacuum or blow forming).

cold forming. Plexiglas sheets may be cold-formed—sprung into a curved frame without heating—if the radius of curvature is at least 180 times the thickness of the sheet. Cold forming to a greater degree is not recommended.

In lighting applications, Plexiglas is generally used as a formed, white translucent, diffusing panel. Because the material can be formed easily with low-cost dies, it has become widely used in the newest trend in lighting—large area illumination.

Forming adds great rigidity to Plexiglas. This makes it possible to use square, rectangular and oval diffusing panels of up to 25 square feet in area. Such panels are free of objectionable sag, and are easy to handle because of the light weight and high impact strength of the material.

ADVANTAGES

maximum light transmission. Total transmission values as high as 90% are common with white translucent Plexiglas diffusers.

excellent diffusion. Light is spread evenly across the surfaces of the diffusers, with minimum brightness variation.

stability. Plexiglas does not yellow or undergo dimensional change during long exposure to fluorescent lamps. Its new appearance is maintained for many years.

safety and ease of maintenance. Diffusers can be handled easily and safely because of the strength, light weight and resilience of Plexiglas.

design freedom. Custom designed panels, for installations requiring relatively low numbers of panels, are practical because Plexiglas can be formed without high tooling costs.

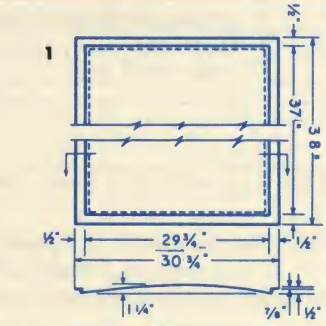


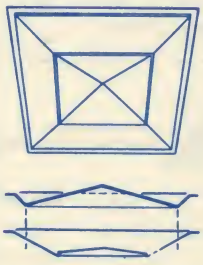
Surface-mounted fixtures, with 12" x 48" diffusing pans, are used at the Sinclair Refining Company offices in New York City.

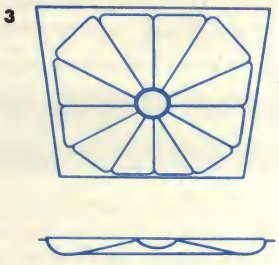


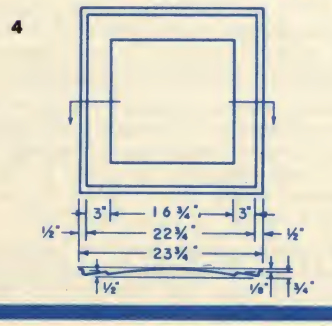
Recessed fixtures light a branch of the Detroit Bank in the Whitney Building, Detroit. Diffusers measure 48" x 48" and 24" x 48".

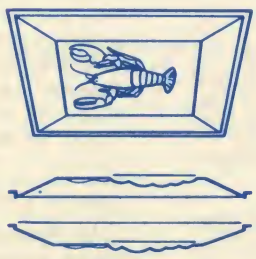
TYPICAL FORMED PLEXIGLAS DIFFUSER PANELS











material thickness vs. span

1. .080"/24" .100"/36" .125"/48" .125"/60"
2. .080"/24" .125"/36" .125"/48"
3. .125"/24"
4. .125"/30"
5. .100"/24" .125"/36" .125"/48"

MAXIMUM SPANS FOR PLEXIGLAS SHEETS

CORRUGATED

Type C-2-1/2 corrugated Plexiglas has an amplitude of 1″ and a frequency of 2- 1/2″. In lengths parallel to the corrugations, panels up to 48″ may be used. The only structural support needed for rigidity is across the edges perpendicular to the direction of corrugation.

Type C-1 corrugated Plexiglas has an amplitude of 3/8″ and a 1″ frequency. Panels up to 30″ in length parallel to the corrugations may be used. It is not practical to overlap corrugations with Type C-1, due to the narrow amplitude. Sheets should be supported on all four sides.

FLAT

Typical maximum lengths for flat sheets are 20″ in 3/16″ thickness and 24″ and 1/4″ thickness, with either two-side or four-side support. If flat panels are turned over after initial sag becomes apparent, panels supported on all four sides can be used up to 24″ x 36″ in 3/16″ thickness, and up to 36″ x 36″ in 1/4″ thickness.

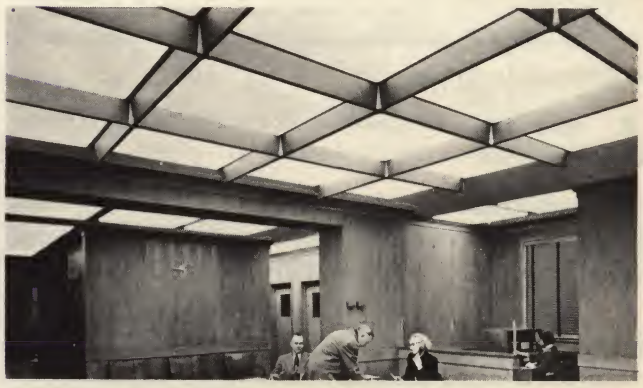
5009 FLAME-RESISTANT

All corrugated sheet span recommendations are reduced one-third when Plexiglas 5009 is used. Plexiglas 5009 flat sheet is not recommended for horizontal installation.

TRANSMISSION CHARACTERISTICS

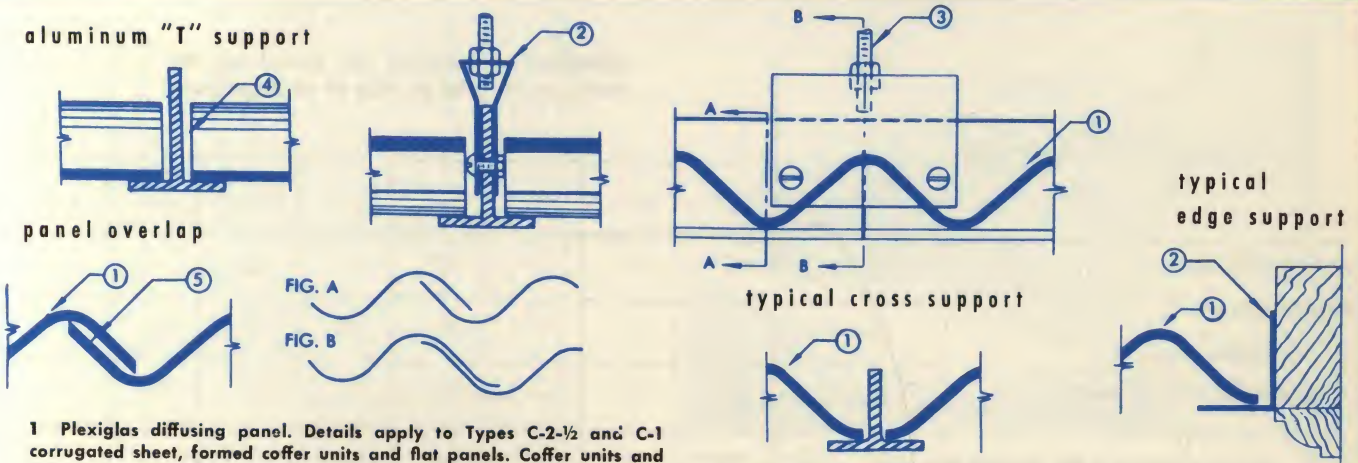
color	thickness	% luminous transmittance* (non-reflecting plenum)	% total transmittance (80% reflecting plenum)
W2067	.250″	47	85
W2159	.187″	48	85
W2447	.125″	47	85
	.080″	56	90

C.I.E. Illuminant C, indicative of north daylight



Modular lighting equipment, with formed 48″ x 48″ diffusing panels, at Thew Shovel Company offices, Lorain, Ohio.

LUMINOUS CEILING SUPPORT DETAILS



1 Plexiglas diffusing panel. Details apply to Types C-2-½ and C-1 corrugated sheet, formed coffer units and flat panels. Coffer units and C-2-½ corrugated sheets need support in only one direction.

2 Brake formed sheet metal: Aluminum, stainless or coated steel. Unistrut support (series P-6000) may also be used.

3 .187″ diameter hanger rods, 36″ to 48″ o.c. Where supports are installed in one direction only, hangers should be braced above Plexiglas to prevent side play.

4 Expansion clearance of 1/32″ per foot of panel dimension parallel to corrugation should be provided for a temperature rise of 50°F.

5 Where minimum shadow is desired Fig. A (open gap) is recommended for joints parallel to corrugations. This method also maintains the lapped panels in the same plane at the joints. Otherwise, panels may be lapped without ⅜″ edge trim as in Fig. B.

FORMED PLEXIGLAS

Plexiglas "formed windows" are sheets formed to corrugated, ribbed or domed shapes. They can be colorless, tinted, or translucent. Being formed, they gain in rigidity and architectural interest. Formed windows provide large areas of daylight admission, are free from the costly maintenance problems associated with small windows, and are simple to install. They offer the architect a new design medium in window glazing.



Large transparent sheets of corrugated Plexiglas form an uninterrupted expanse of glazing for transmission of high-frequency television signals.

ADVANTAGES

1. **low cost**—One piece construction with simple edge engagement cuts installation costs to a minimum.
2. **trouble-free**—Minimum framing and joints minimize weather problems.
3. **strength**—Plexiglas resists impact, twisting, vibration and shock.
4. **reduction of sky glare**—Tinted transparent colors reduce glare without loss of visibility. Translucent colors reduce glare and diffuse daylight.
5. **reduction of solar heat**—Transparent and translucent colors absorb and reflect solar heat, thereby help to keep a building cooler.

TOTAL SOLAR ENERGY TRANSMISSION AND VISIBLE LIGHT TRANSMISSION

type of material	% solar energy transmittance	% luminous transmittance*
Plexiglas colorless	59	92
Plexiglas #2064 neutral gray	44	27
Plexiglas #2069 blue tint	71	54
Plexiglas #2111 green tint	76	78
Plexiglas W-2447 white translucent, .187" thick	56	56
Plexiglas W-7328 white translucent, .187" thick	33	33

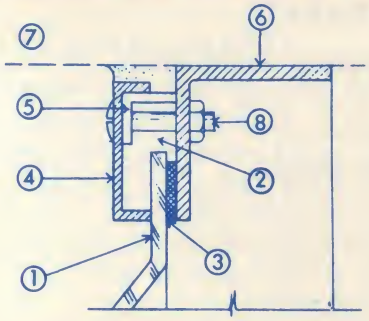
**C.I.E. Illuminant C, indicative of north daylight*

TYPICAL PLEXIGLAS THICKNESSES FOR SIDEWALL GLAZING IN RELATION TO PANEL SIZE

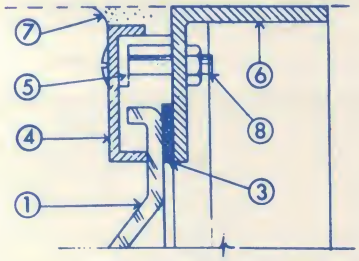
types of glazing		minimum dimension of panel or dimension parallel to ribs or corrugations							
		to 1′	1′-2′	2′-3′	3′-4′	4′-5′	5′-6′	6′-7′	7′-8′
corrugated sheets ribbed panels rib spacing no greater than three times rib depth	depth 1″	1/16″	1/16″	1/8″	1/8″	1/8″	3/16″		
	depth 2″	1/16″	1/16″	1/16″	1/16″	1/8″	1/8″	3/16″	
	depth 3″	1/16″	1/16″	1/16″	1/16″	1/8″	1/8″	1/8″	1/8″
domes	rise = 5% of minor dimension	1/16″	1/16″	1/8″	3/16″	3/16″			
	rise = 10% of minor dimension	1/16″	1/16″	1/8″	1/8″	3/16″	1/4″	5/16″	3/8″
flat sheets		1/16″	1/8″	3/16″	1/4″	1/4″	5/16″	3/8″	1/2″

GLAZING DETAILS

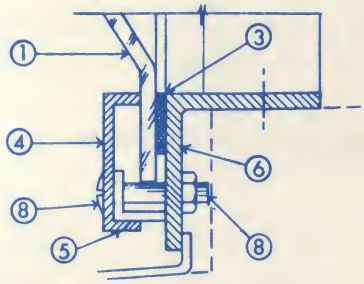
HEAD



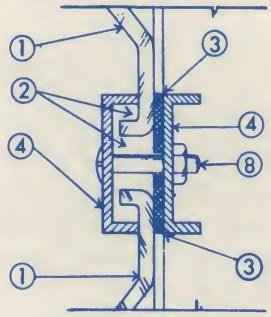
JAMB



SILL

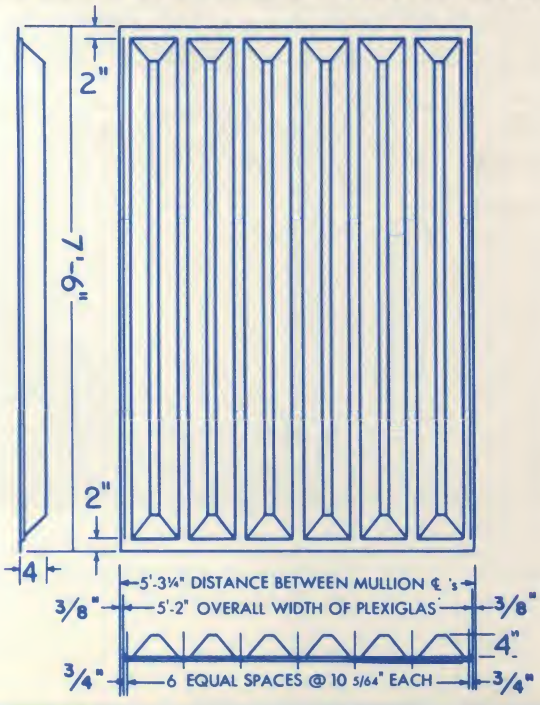


MULLION



1. Plexiglas glazing panel. (Thickness required depends on type and depth of forming. Panels should be minimum 1/8″ thick in sizes up to 48″ x 60″ and 3/16″ in larger sizes in designs suggested.)
2. Expansion and contraction clearance. (Provision for movement of panel should be based on coefficient .00004″ per inch per °F.—approximately 1/32″ expansion and contraction per ft.).
3. Keystone No. 162 Tape, Presstite Engineering Co., 39th & Chouteau, St. Louis 10, Missouri.
4. 1 3/4″ x 1/2″ x 1/8″ aluminum channel extrusion No. 8449, Aluminum Co. of America.
5. Aluminum angle spacer 1″ wide.
6. 2″ x 2″ x 3/16″ aluminum angle.
7. Caulking.
8. Aluminum oval-head 1/4″-20 bolt approx. 16″ o.c.

FORMED PANEL DETAILS AND TYPICAL INSTALLATION





Formed Plexiglas windows are used to glaze this modern building. The panels, formed to a V-rib corrugated design, are neutral gray transparent for glare reduction. They measure 48″ x 84″.

Because Plexiglas burns, its use as a glazing material is subject to building code limitations which are more restrictive than those applicable to plain glass.

Prefabricated skylight units with formed Plexiglas domes bring maximum flexibility to daylighting systems. They are available commercially in square and rectangular shapes, in sizes ranging from 20″ x 20″ to 60″ x 96″. They can also be purchased in circular shapes of various diameters. The units are made with colorless Plexiglas domes, for transparency, and with white translucent domes for greater diffusion of daylight.

Frequently, slightly domed Plexiglas panels are installed under skylight units, flush with the ceiling of a room. This provides additional thermal insulation, can conceal lighting fixtures in the skylight well, and integrates the skylighted area with the surrounding ceiling.

Plexiglas dome skylights offer many outstanding features for daylight admission into school, industrial plant, institutional and residential buildings.

ADVANTAGES

1. one-piece construction—The entire opening is covered by a single leak-proof dome. Troublesome joints, supports and sealing compounds are eliminated.

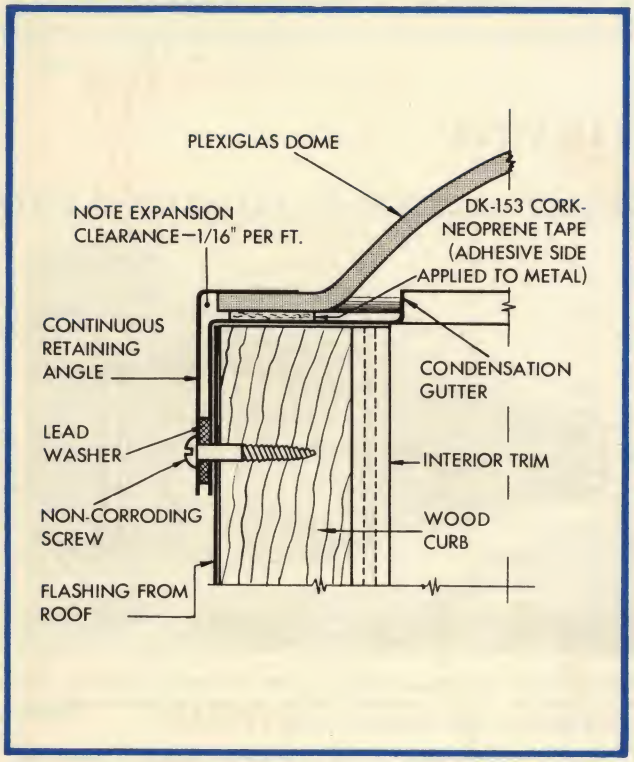
2. light weight—A complete skylight unit, including weatherproof framing for the dome, has an average weight of only two pounds per square foot. Architects have great freedom from structural limitations in the placement of skylights.

3. breakage resistance—The strength and resilience of Plexiglas, and the structural rigidity of the dome shape, provide safety overhead.

4. daylighting efficiency — White translucent Plexiglas transmits 60-75% of daylight, provides complete diffusion, and reduces solar heat. Clear Plexiglas provides 92% transmittance. Opaque supports across the roof opening are eliminated by the one-piece dome.

5. minimum maintenance — Dome shape promotes self-cleaning. Skylights with strong, durable domes of Plexiglas give long trouble-free service.

TYPICAL INSTALLATION DETAIL



TYPICAL INSTALLATION



Typical school installation of Plexiglas dome skylights. The one-piece domes provide maximum admission of daylight through roof openings in schools, industrial plants, institutions and homes.

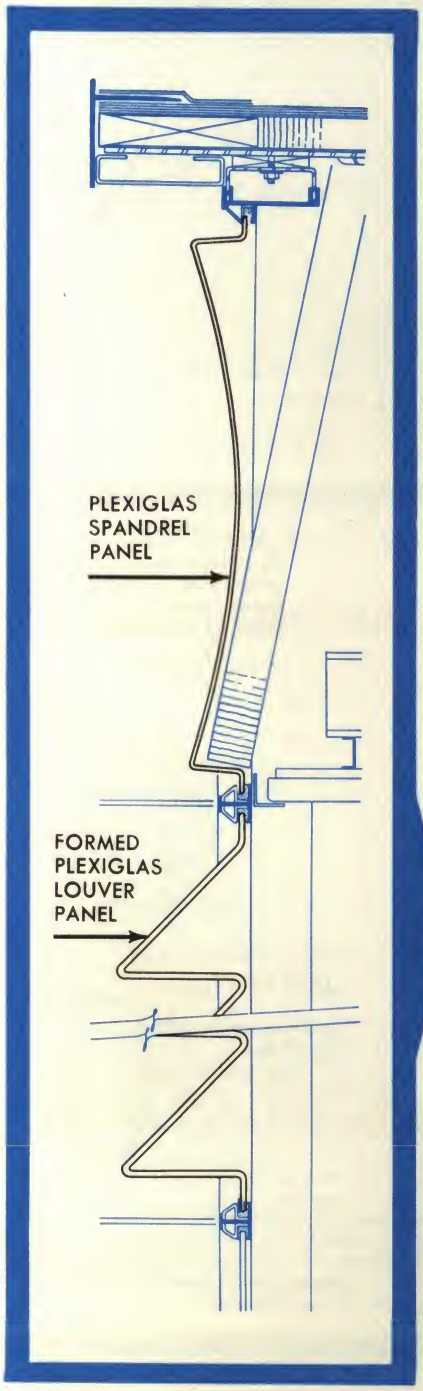
PLEXIGLAS SPANDREL PANELS

PLEXIGLAS SPANDREL PANELS

Spandrel panels formed from Plexiglas sheet offer the advantages of a wide selection of colors, shapes and surface textures. Individual panels can be as large as 60″ x 96″ in standard sizes and even larger custom sizes can be obtained. Translucent colored Plexiglas spandrels can be backlighted with fluorescent lamps to provide complete luminosity at night. The application of Plexiglas letters and trademark reproductions integrates company and building identification.

INSTALLATION

Spandrel panels can be installed in extruded aluminum frames typical of those used in curtain wall construction. Frames should provide adequate engagement of the panels after allowance for maximum thermal contraction and wind loading. The panels should be shorter in both dimensions than the frame opening, to allow for thermal expansion of the Plexiglas.

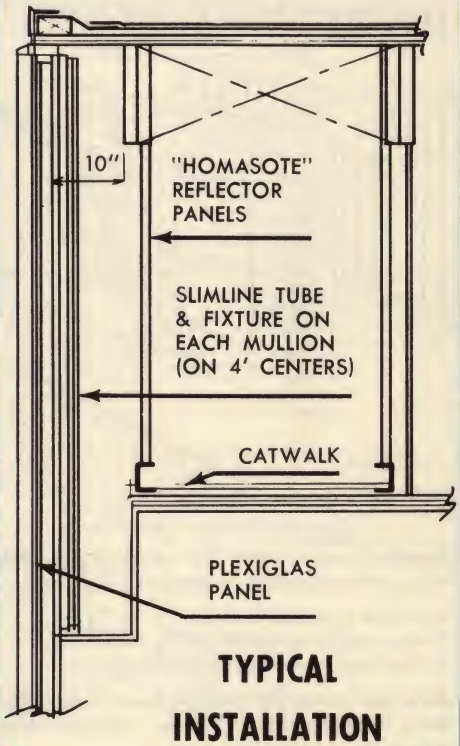


TYPICAL INSTALLATION 4′ x 8′ backlighted spandrels, letters and trademark reproductions give dramatic appearance to this building in Cleveland.



TYPICAL INSTALLATION
At this Rohm & Haas office-warehouse near Chicago, spandrels are combined with daylight louver panels.





TYPICAL INSTALLATION DETAIL

Signs made of Plexiglas are usually illuminated with neon or fluorescent tubes concealed behind the acrylic plastic. The light is diffused and spread evenly over the visible surface of the translucent material, resulting in complete luminosity of sign faces or letters.

ADVANTAGES

1. effective day and night—In daytime, Plexiglas signs have broad-stroke legibility, solid three-dimensional appearance, and full color value. At night, they glow brilliantly from interior lighting that is diffused over the entire visible surface.

2. design flexibility—Plexiglas is available in a wide range of colors, and can be formed to almost any shape. Complex trademarks and pictorials of products can be painted on Plexiglas. The size of a sign face is not limited. Letters are commercially available, or can be custom fabricated, in many styles.

3. architectural appeal—With Plexiglas, architects can design signs that have dignity, can be lighted spectacularly, and can be integrated with a building's appearance and the nature of a business.

4. weather resistant—Outdoor sign faces and letters of Plexiglas resist cracking, chipping, warping and dimensional change. A wide range of stable translucent outdoor colors is available.

5. low maintenance—The electrical components of a Plexiglas sign are enclosed, protected from weather and damage.

6. controlled brightness—Plexiglas signs attract attention by means of large luminous areas, lower in brightness than exposed light sources.

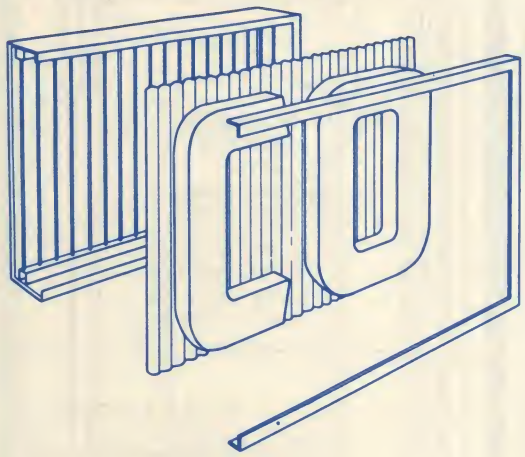
TYPES OF SIGNS

1. Signs made of flat, corrugated,or formed Plexiglas colored background panels on which Plexiglas letters are mounted.

2. Large architectural facades, pylons or spectaculars of flat, corrugated or formed Plexiglas, on which letters and other identification devices are mounted.

3. Interior-lighted three-dimensional letters, or metal channel letters with flat Plexiglas faces.

CORRUGATED PLEXIGLAS BOX SIGN

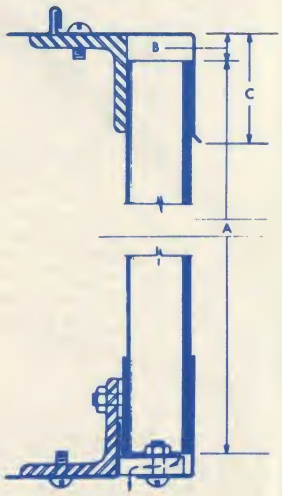


Provision must be made for expansion and contraction which occurs with changes in temperature.

A—Length of Plexiglas panel.
B—Expansion clearance—½ of 1% of A.
C—Minimum depth of channel—2% of A.

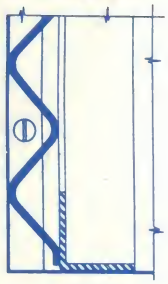
Note: Panels over 4 ft. in height should be hung by bolting at top every fourth corrugation through oversized holes using rubber grommets.

TOP AND BOTTOM DETAILS FREE STANDING CORRUGATED PANEL

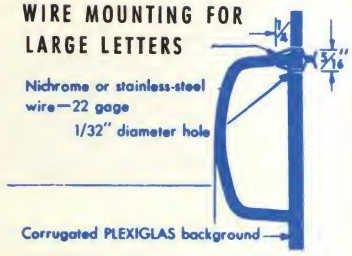


END DETAIL

Corrugated Plexiglas may be snugly held at sides with expansion taken up by bellows action of corrugations.



WIRE MOUNTING FOR LARGE LETTERS

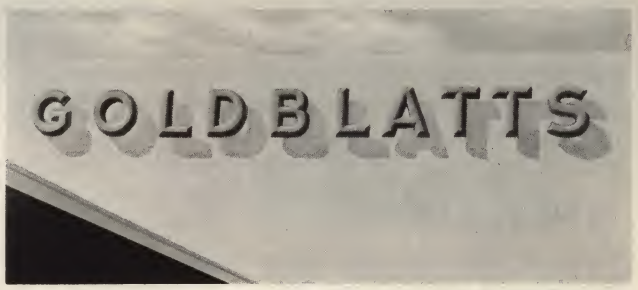


Use #22 ga. nichrome or stainless steel wire. Maximum spacing of wire fasteners not to exceed 18" square. Letters four feet and over in width should be supported in center of letter, to peak of corrugation and valley of corrugation, at locations more than two feet from center, to allow for expansion.

TYPICAL INSTALLATIONS



This 185-foot sign, with Plexiglas panels and letters, identifies a bank in Temple, Texas. The corrugated background panels are 4' x 6'; they are interior-lighted by 3000 feet of neon.



Formed Plexiglas letters are used on all sides of the Goldblatts department store in the Park Forest Shopping Center, Illinois. Letters are 4' high , with 11" strokes.

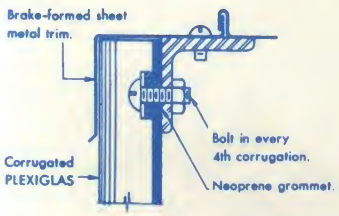


Interior-lighting gives complete luminosity to the Goldblatts letters at night. Letters are formed to a rounded-face design.

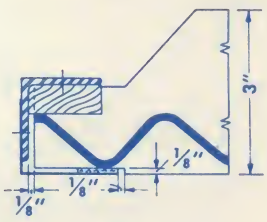
LARGE C—2½ CORRUGATED SHEET SIGNS

HANGING SINGLE CORRUGATED SHEETS BY BOLTING

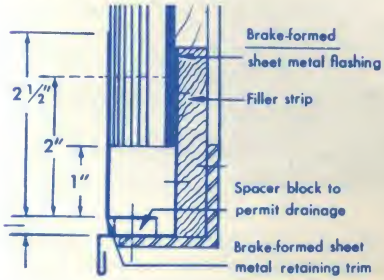
TOP



SIDE CHANNEL



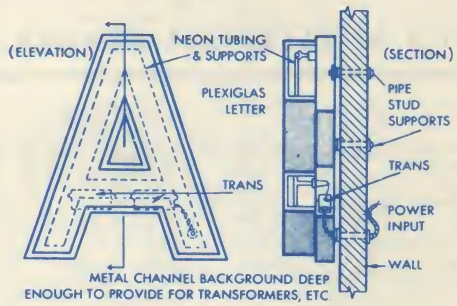
BOTTOM



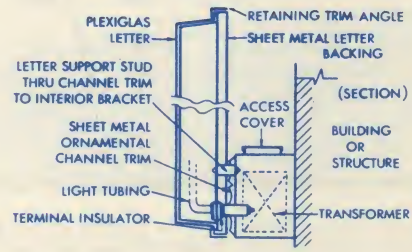
In general, corrugated sheets over six feet in height should be hung. Sheets are bolted in every fourth corrugation through over-sized holes using neoprene grommets.

LETTER MOUNTING AND WIRING DETAILS

STUD MOUNTED LETTER



ORNAMENTAL CHANNEL MOUNTED LETTER



Many types of merchandise display fixtures, both standard and custom, are made of Plexiglas. These include millinery, shoe and jewelry trees, wall boxes, show cases, counter dividers, tiered shelves, rigid envelopes, and drawer trays. The names of display fixture manufacturers are available on request.

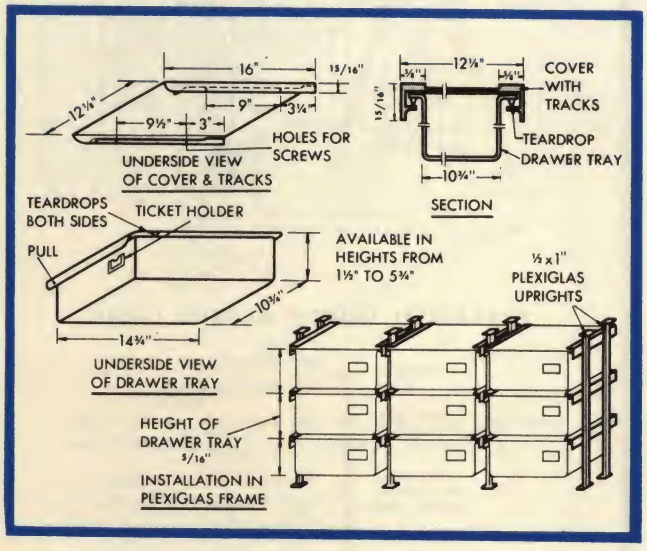
TYPICAL EXAMPLE

Transparent drawer trays illustrate the effectiveness of Plexiglas for merchandise display in department and variety stores.



This extensive installation of drawer trays in a large Eastern department store shows the "open display" effect achieved through the use of transparent Plexiglas drawers, covers, and framing.

DETAILS OF PLEXIGLAS DRAWER TRAYS



Plexiglas drawer trays can be installed as modular units in prefabricated Plexiglas frames or in simple wood cabinets made by local woodworking or store maintenance shops. Existing fixtures can be converted to accommodate Plexiglas drawer trays without difficulty.

ADVANTAGES

The sparkle and clarity of colorless transparent Plexiglas make it a beautiful yet unobtrusive setting for all types of merchandise.

The ease with which Plexiglas can be fabricated, with freedom from finishing operations, makes it possible to meet custom requirements quickly.

Fixtures are safe and easy to handle because Plexiglas resists breakage and is light in weight.

The versatility of the plastic as a design medium makes it adaptable to the merchandising and architectural plan of almost any retail store.

ADVANTAGES OF PLEXIGLAS DRAWERS

1. Customers can see and select merchandise easily.
2. Stocks are visible, easier to keep in order.
3. Merchandise has heightened visual appeal.
4. The quality appearance of Plexiglas adds an attractive note to general store decor.
5. Operating costs are reduced, through increased speed of sales and efficient inventory control.



This island display for pound stationery at The Hecht Company store in Arlington, Va., has Plexiglas storage dividers, counter tops, and transparent boxes that greatly facilitate customer self-service.

DIRECTIONAL AND DEPARTMENTAL SIGNS

Plexiglas signs are used inside retail establishments because of their durability; legibility; the variety of lighted effects that can be achieved; and their excellent appearance, particularly where rich styling is desired. Directional and departmental signs of Plexiglas can be:

1. Clear panels with carved letters, edge-lighted or non-lighted. This type of sign, being essentially transparent, commands attention while maintaining the open effect of a store layout.

2. Fluorescent-colored panels with carved letters. This type of a sign is, in effect, self-illuminated.

3. Back-lighted or non-lighted translucent colored panels with applied letters, symbols and insignias.

TYPICAL INSTALLATIONS



This departmental sign has colored letters applied to white panels for excellent legibility. The panels are flat behind "Shops," are formed to a ripple design behind "Downstairs."



A clear panel, formed to a drape design, is decorated in fabric patterns to make this distinctive sign. All installations shown are at Ellis Stone & Company, Greensboro, No. Carolina.



A colored panel, formed and decorated to simulate a towel, is an effective wall sign. The store signature is reproduced on a white disc.



A transparent sign, formed to a scroll shape, is used as a free-standing marker on a counter top. The legend is painted on the back surface.

PLEXIGLAS SERVICES AND PUBLICATIONS

ARCHITECTURAL SERVICES

Technically trained field representatives will be glad to assist architects in the selection of the proper type of Plexiglas for specific applications, advise on problems of design and installation, and suggest sources of supply for standard building products and custom fabrication.

The services of Rohm & Haas Company field representatives are augmented by the staff of a design and fabrication laboratory where new applications for Plexiglas and new techniques in its fabrication and installation are studied and developed.

PUBLICATIONS FOR THE ARCHITECT

The following brochures and bulletins, indicated by title and code number, are available on request:

- Design and Fabrication Data (PL-28)
- Architectural Lighting with Plexiglas (PL-202)
- Outdoor Lighting with Plexiglas (PL-242)
- Daylight Control with Louver Panels of Plexiglas (PL-226)
- Plexiglas Dome Skylights (PL-301)
- Plexiglas for Replacement Glazing (PL-251)
- Plexiglas for Architectural Signs (PL-306)
- Plexiglas for Signs (PL-287)
- Plexiglas in Architecture (PL-362)

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IN CANADA:
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Printed in U.S.A.